

Fábio Portela Lopes de Almeida

# Constitution

The Darwinian Evolution of a Societal Structure



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*For Eduardo.*



## Foreword

Hauke Brunkhorst

In an essay that appeared 2014 in *Cardozo Public Law, Policy & Ethics Journal* a young Brazilian scholar, Fabio Almeida, reconstructed modern constitutionalism as a legal order based in the mediation of our universal moral grammar with modern society and the revolutionary dynamic of cultural evolution. The essay was already 100 pages long, and we exchanged some e-mails about it. A little later I read Fabio's pathbreaking book manuscript that explained his theory of social evolution in extenso.

To a certain extend Fabio follows the path of Niklas Luhmann's system theory. However, in two crucial respects, he changes the theory. First he drops the thesis that mind and society, social and psychic systems are both closed systems, which are environment for each other, and can observe each only from the outside. Consciousness and agency matter in evolutionary terms. In particular, our moral consciousness functions as a kind of internal constraint of the possible paths the social evolution can take. Second, Fabio overcomes Luhmann's reduction of culture to the semantic reflection of social structures (systems). Only an autonomous cultural evolution that is due to cognitive and normative learning processes of social groups can explain how our moral consciousness can fulfill its directional function within the social evolution through agency.

In his pathbreaking study Fabio Almeida shows that the culturally mediated development of moral consciousness within social agencies is a driving force of collective learning processes, and that only culturally mediated moral consciousness can explain the solution of the adaptive problems that emerge during the transformation from segmentary (egalitarian) to stratified (hierarchical), and from stratified to functionally differentiated societies. Modern constitutionalism is due to this complex developmental process of cultural knowledge, societal class- and systems-formation, and individual and collective agency.

To this explanatory purpose, Fabio develops two special hypotheses. Due to the long lasting period (between hundred and two hundred thousand years) of egalitarian hunter-gatherer societies with an anti-hierarchical and anti-authoritarian system of norms, human beings developed an *innate universal moral grammar* centered at a core of *moral principles* such as egalitarian freedom, that is to a certain extend universalizable and based on a

kind of individual independence. As in Chomsky's universal or deep grammar theory, these principles are contextualized by specific parameters, which adjust them to local social and cultural conditions.

Moral learning through social interaction can occur on the level of principles. However, most of it occurs on the level of parameters. The parameters allow learning to assume an endless variety of different languages of morality in the course of one or two generations, whereas hundreds of generations and more are needed to change the grammar of our innate moral principles. If we take the epigenetic turn of the last two decades in account, this idea becomes even more plausible than on the basis of the 'modern synthesis' of evolutionary genetics.

Having said this, there are recalcitrant problems of adapting the moral deep grammar of human beings to the emerging imperial class societies of unprecedented injustice since about 3000 BC. As Fabio Almeida shows, these problems cannot be solved by functional mechanisms such as the replication of relatively egalitarian structures within the different social strata (classes, estates). This, it needs at least some *structural* changes of the moral parameters to affect the scope and deepness of the universalizability and individualization of the moral grammar of egalitarian freedom. The invention of an unconditioned morality (deontological ethics) within the frame of comprehensive philosophical and religious world-views (exemplary in the story of Job) finally led to a *double* – and therefore ideological – solution of two independent problems at the same time. First, of the systemic problem of adaptation of a class-society to the egalitarian expectations of its environment of human agencies. Second, of the cognitive and normative problem of injustice, which tears asunder the individual consciousness and the cultural knowledge of society as a social group of humans. This problem cannot be solved from the point of view of adaptation as the old saying 'Fiat Justitia et pereat mundus' nicely demonstrates. Therefore, it needed an ideology that enabled a fierce criticism of injustice, and a kind reconciliation of the demand for justice with structurally unjust domination, or as Fabio expresses it, inequalities had to be justified as fair and deserved. Religious and metaphysical world views satisfied both demands for the time being but not for ever, and never completely, and this became a driving force of further search for solutions (learning-processes) which due to changing circumstances could become a weapon of critic that could destabilize and destroy unjust societal structures. This way religion in the service of class domination can strike back, and it did so in Europe in the time of great legal revolutions first of the so-called Papal Revo-



lution and the Protestant Revolution and later in the post-Christian world revolutions of the 18s and 20s centuries.

In the course of the Protestant Revolution and the religious civil wars of the sixteenth and seventeenth centuries another recalcitrant problems emerged that was due to progressing functional differentiation and religious fragmentation. Due to Fabio, this problem was solved in a learning process over two generations. First (Peace of Augsburg 1555), a *modus-vivendi* was legally enforced but remained social-psychologically unstable. However, the second generation started to internalize the law psychologically, and transformed it finally into a morally convincing religion of tolerance, and the external threat of legal sanctions became rationally motivated *moral habit*.

The point of Fabio Almeida's ingenious synthesis of Rawls and Luhmann again seems to prove that psychologically based moral constraints of evolutionary adaptation of functional systems are due to independent cultural learning processes, as Rainer Forst's (Toleranz und Konflikt 2003) reconstruction of the religious and philosophical discourse on tolerance during the seventeenth and eighteenth centuries nicely shows.

Today, the egalitarian, normatively and cognitively inclusive tendency of constitutionalism (rule of law, subjective rights, democratic principles: civic self-determination, 'quod omnes tangit' etc.) enables the fight for rights within the right, that is, the fight within the law against the existing interpretation of law. This fight is essential for gradual and continuous cognitive and moral learning (and unlearning) in modern societies. The function of constitutional law in this learning process is met by Almeida's reconstructive interpretation. The combination of subjective rights with the organizational principles and legal norms of democratic check and balances (*demokratisches Staatsorganisationsrecht*) functions as a 'built-in rightswidener' (Steven Pinker). Therefore, constitutions can bridge the modern chasm between a high-speed cultural evolution and a much slower evolution of our moral psychology. Backed by *built-in rightswideners*, constitutions can stabilize the precarious emancipation of the universalistic *principles* of the individual mind from the reactionary censorship of parochial and egocentric *parameters*. Already in his essay from 2014 in the Cardozo Law Review Fabio Almeida rightly emphasizes that the 'built-in rightswidener (...) could be invoked to end slavery four score and seven years' after the *Declaration of Independence*, 'and other forms of racial coercion a century after that'. This was not despite, but 'because' 'the *abstractness* of the declaration of rights' and the constitutional priority of the right over the good. Even if they ever again were (ab)used 'hypocritically', they

‘allowed’ ‘for the discussion about *who* are their legitimate bearers and opened the door for a new possibility: that every human being might be considered a bearer of constitutional rights’ (Almeida).

January 2020

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I also had the luck of finding so deeply committed supervisors, Marcelo Neves and Paulo Abrantes, who took my project really seriously. The sociological motivation provided by my supervisor, Marcelo Neves, was decisive. In the beginning of the research project, I was inclined to agree with sociobiologists and evolutionary psychologists, who sustain an under-determination of sociological processes by our psychology. Marcelo "saved me" from this bias and inspired me in taking sociology seriously, without abandoning my idea of taking psychological and biological aspects of the human nature into account. His presentation of the sociologist Niklas Luhmann, as well as of the works of Talcott Parsons, became a fundamental part of the thesis. Without his academic support – even though we have not always agreed! –, I would have never been able to bring the sociological and biological traditions into the conversation.

The supervision by Paulo Abrantes also had an ultimate impact. This academic endeavor began almost ten years ago, during discussions in a class taught by Paulo Abrantes on the Philosophy of Biology. From that

time onwards, we have developed a productive partnership and friendship, including his supervision on my Masters in Philosophy, which, in many ways, anticipated several of the questions discussed herein. Abrantes' influence is pervasive throughout this trajectory, since he was the one who introduced me to authors such as Peter Richerson, Robert Boyd and Peter Godfrey-Smith – among so many others! –, who are important references. His disciplined and analytic mind was, for sure, a powerful guiding light. Also, I am indebted to the research group led by him on the Philosophy of Biology subject, since many themes explored in the book were subject of discussion the meetings inspired.

Jon Hanson, my supervisor during the period at Harvard, was also a major source of encouragement. Our discussions in his office, his invitation for me to present the findings of my research in an open debate at Harvard Law School and his classes on torts law proved that taking psychology into account is indispensable if we want to fully understand the role of law in regulating social life.

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## Introduction

Nothing about law makes sense except in the light of evolution.

The emergence of modern societies, structured around the rule of law, is an evolutionary puzzle in need of explanation. Although traditionally seen as the result of historical, philosophical and sociological contingencies, these societies are also an unexpected and improbable institutional construction when observed through the lenses of modern biological theories of cooperation. *Homo sapiens* is the only animal species capable of cooperating in large-scale societies where individuals are not genetically related.

Although it is possible to find natural examples of animal species whose members live in societies consisting of millions of genetically related individuals or in small societies in which genetically unrelated members cooperate, we are the only known species capable of cooperating under both of these conditions: we cooperate in large-scale societies composed of unrelated individuals. More than that, we cooperate in a culturally and institutionally complex environment. Our interactions are not only based on our biological nature, but also on shared beliefs transmitted through various methods of cultural transmission, embedded in an institutional background and – especially after modernity – in functionally differentiated social systems. We collaborate not only to fulfill our biological needs, but also to fulfill sociological expectations, performing economic, religious, educational, legal and political operations.

From an evolutionary perspective, this is an intriguing question that must be addressed. Social scientists usually assume that life in large-scale societies is the result of cultural, social and institutional history. In this perspective, social institutions such as law, economy and religion facilitate cooperation at higher levels. However, the answer to this puzzle just calls for the following question: Why do these institutions exist and how do they regulate human social cooperation in a way that allows for the growth of large-scale cooperation in our species? Gene-culture coevolutionary theories have been studying this issue from an integrated framework that ac-

counts for social and biological theories of cooperation.<sup>1</sup> These theoretical approaches have provided a successful account of the emergence of human institutions with reference to a coevolutionary background in which specific innate psychological features of the human mind enabled the evolution of social institutions that impose social pressures, requiring the evolution of a complex moral psychology to enable life in a social environment with institutions.

However, whereas gene-culture coevolution theories can explain cooperation in pre-modern societies,<sup>2</sup> they still cannot explain cooperation in functionally differentiated societies as complex as contemporary societies. The primary mechanism that allows for cooperation in large-scale societies, as we will see, is symbolic marking: the psychological ability to identify cultural signs – religion, language, dressing style, tattoos and ritual practices, among others. These markers inform how people belong to particular groups, and they enforce cooperation with a greater number of people because they allow the easy identification of those who are from the same group, allowing the targeting of altruistic acts to benefit group members. However, symbolic marking is not enough to explain by itself the evolution of complex societies that are strongly divided by different symbolic markers. In contemporary democratic societies, cooperation is possible even in a context in which individuals do not agree about the comprehensive doctrines that embody the main values of their society.<sup>3</sup> In other words, individuals in democratic societies are able to cooperate with other individuals who do not share their symbolic markers.

Acknowledging this fact brings into question the discussion concerning how it has been possible, from a biological perspective, that individuals cooperate in large-scale societies with people with whom they are not genetically related and with whom they also do not share emotionally strong symbolic markers. Following the ambition of Edward O. Wilson<sup>4</sup> to achieve consilience between natural sciences and humanities, I will argue that the cooperation level needed to drive the evolution of complex soci-

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- 1 See Gintis, H. (2011). Gene-culture Coevolution and the Nature of Human Sociality. *Philosophical Transactions of the Royal Society B-Biological Sciences*, 366(1566), 878-888.
  - 2 See Richerson, P. J. and Boyd, R. (2008). *Not by Genes Alone: how Culture Transformed Human Evolution*. Chicago: University of Chicago Press. pp. 235-236.
  - 3 See Rawls, J. (2005). *Political Liberalism* (Kindle ed.). New York: Columbia University Press. pp. 532-702.
  - 4 See Wilson, E. O. (1998). Consilience among the Great Branches of Learning. *Daedalus*, 127(1), 131-149.

eties is possible as a result of the emergence of one particular institutional sociocultural framework: constitutionalism. In this sense, this is an attempt to integrate sociology, biology and legal theory to understand constitutionalism as an evolutionary adaptation to specific historical and sociological circumstances that demanded the emergence of institutions that could accommodate diversity, pluralism and complexity.

I argue that nothing in law makes sense except in the light of evolution. This strong statement, an explicit appropriation of the title of a lecture delivered by the biologist Theodosius Dobzhansky in 1973<sup>5</sup>, implies some epistemological commitments, particularly the supposition that evolutionary theory can help us understand how human societies came to be what they are nowadays and the role that law – and more specifically constitutional law – played in this process. However, stating that nothing in law makes sense except in the light of evolution is bolder than that, and this claim needs to be justified. This is the task I hope to accomplish in the first chapter: as I see it, only an evolutionary approach can allow us to understand legal history as part of a much wider process that encompasses not only written history, but also our very history as an evolved biological species. As a result, legal history will be observed as part of the evolutionary history of how we, humans, came to cooperate in such a distinct way.

I discuss the evolutionary foundations of human pro-social behavior in the second chapter. How do we cooperate? In which ways does human cooperation resemble how other individuals in other species interact and collaborate? And, more important, how is human behavior distinct? In this chapter, the human pro-social behavior will be examined as part of natural history. In order to do so, I begin by examining the evolutionary mechanisms that predispose altruistic behavior, such as kin selection and direct reciprocity, in order to explain how human behavior is unique. An important point highlighted here is the role of our psychological dispositions to act in accordance with social rules and to engage in egalitarian and reciprocal interactions – what I call a 'normative mind'. In this chapter, it will become clear how our evolved social psychology paved the way to the emergence of tribal societies such as egalitarian bands of hunter-gatherers.

The third chapter is dedicated to another issue. I will discuss how human societies are to be understood as evolutionary units. Based on Peter Godfrey-Smith's *Darwinian Populations and Natural Selection*, the sociological micro-macro link debate will be addressed. Issues such as the emer-

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5 See Dobzhansky, T. (1973). Nothing in Biology Makes Sense except in the Light of Evolution. *The American Biology Teacher*, 35.

gence of society as an autonomous entity, as described in social theory from Durkheim onwards, and how the social order emerges from individual interactions and plays a causal role on social behavior will be taken into account. I will also assess Luhmann's systems theory, reconstructing it in order to devise a theoretical approach capable of describing the interaction between sociological and psychological processes, by taking as a premise that biology imposes some constraints on sociocultural evolution.

In the fourth chapter, I discuss the role law played in the development of stratified societies. As already mentioned, the prehistoric bands of hunter-gatherers were egalitarians. In the last 5,000-10,000 years, however, things changed and many stratified societies marked by a deep and structural inequality emerged. How did this happen? In order to discuss the issue, I present the function of law as an adaptive feature of society that promotes cooperation and maintains the social structure. The concept of function is also an important theme in this chapter, insofar as I attempt to demonstrate that it is an abstract concept, applicable not only to biology, but also to sociological entities. The role of psychological predispositions in the evolution of law will be also evaluated in this chapter, where I claim that the normative assumptions nested within our innate social psychology shape a universal structure of law. These normative predispositions can be understood as the natural law root of all legal systems, in the sense that law must adjust itself to the normative assumptions nested within our minds. Law is also presented as a necessary feature in the development of stratification in pre-modern societies, which, as I will argue, became widespread as a result of evolution. Stratified societies prevailed because they were more efficient vis-à-vis other societal forms, at least until modernity.

Constitutionalism is the theme of the fifth – and last – chapter. The question to be answered is: how did modern constitutional democracies reverse the pervasive stratification of pre-modern societies? My hypothesis is that constitutionalism played a fundamental role in this process, by structuring egalitarianism not only in the micro-dynamic level of individual interactions – as in prehistoric hunter-gatherer bands –, but also as a functional imperative regulating the very relationship between social systems. The emergence of such possibility will be explained in strictly Darwinian terms, as a result of the natural selection acting upon the societal structure and sorting out less fit social structures in comparison to others. As I will argue, constitutional societies were selected because constitutions are an adaptive feature in the context of modernity, when functional systems became increasingly differentiated, thus reducing the fitness of pre-modern societies, which were unable to cope with such a complex environment.

Another debated issue relates to the connection between constitutionalism and moral psychology. In order to structure a stable social order, constitutions must be compatible with our innate psychological normative predispositions – or, otherwise, social unrest would lead to rebellions and revolutions, probably undermining the endurance of constitutional societies. As I will sustain, there are strong reasons to believe that constitutionalism, as a matter of fact, fits with many features of our own psychology.

The book is indebted to many theoretical traditions. First of all, evolutionary theory is the most obvious influence. From Darwin to many recent developments within the evolutionary framework, such as gene-culture co-evolution theory, allusions to theories of biological, social and cultural evolution will be constant. The reference to evolution is not to be understood as a strictly biological approach, considering the fact that the sociological reality must be understood in its own terms. As a result, this is an attempt to understand social evolution considering an interdisciplinary framework which respects and takes seriously the contributions made by sociologists, economists and other social scientists. In this sense, I am indebted to the research developed by Peter Richerson, Robert Boyd, Peter Godfrey-Smith, Samuel Bowles, Herbert Gintis, E. O. Wilson, Marc Hauser, Paulo Abrantes, among many others.

A major sociological reference here is Niklas Luhmann's systems theory. Luhmann's complex work opens many theoretical possibilities that can be used to structure a theory of how biological and sociological entities relate to each other. The approach to Luhmann's theory will be dialogic, meaning that I will not take his theory as a departure point, but as an important interlocutor whose insights will be debated on, accepted as part of the proposed project or, sometimes, rejected. However, the reader will notice the prominent influence of Luhmann's work, especially concerning, but not restricted to, the description of the modern world society and the transition from pre-modern times. Other social theorists also had a major influence, such as Talcott Parsons, Jonathan Turner, Marcelo Neves, Kent Flannery and Joyce Marcus and David Sciulli, whose theories influenced me in one way or another. Hauke Brunkhorst's *Critical Theory of Legal Revolutions* was also an important influence, as will be clear in chapter 5.

Another pervasive influence in this text is John Rawls' philosophy. However, his famous two principles of justice will be barely mentioned here. I am more concerned with some secondary insights in his thought, such as the use of Chomsky's explanation of how individuals grasp a language to understand how we reason about normative issues. Another major influence of Rawls relates to his late perception that the stability of constitu-

tional democracies relies on an overlapping consensus. I will refer to these (and other) Rawlsian insights and attempt to provide an evolutionary explanation for them, while simultaneously taking into account sociological and biological considerations.

As I see it, the relevance of this proposal relates to the interdisciplinary approach taken. The complexity of human societies urges us to explain how the social order emerged by making reference to all the theoretical tools available in the pursuit of a balanced and consilient perspective that understands the various scientific fields as complementary, and not opposite attempts to understand social reality. This is an inherently difficult task, although – I believe – a valuable one.



## 1. Constitutionalism, Evolution and Social Theory: the Need of an Integrated Approach

The market of ideas has already provided a lot of theoretical approaches to constitutionalism. Legal Historians such as Jack Rakove, Gordon Wood, Lynn Hunt, Jonathan Israel, Maurizio Fioravanti, Arthur Jacobson, Bernard Schlink — among so many others! — have carefully analyzed, scrutinized and explained almost every possible historical aspect on constitutional origins' revolutions.<sup>6</sup> Despite their disagreements over substantial issues, legal and moral philosophers from widely different traditions, such as John Rawls, Ronald Dworkin, Jeremy Waldron, F. A. Hayek, Robert Alexy, Hans Kelsen, Carl Schmitt, Jacques Derrida, Bruce Ackerman, Sanford Levinson, among many others who could also be on this list, have also clarified many issues about the meaning of constitutionalism, its premises, strengths and contradictions.<sup>7</sup> The contributions from legal soci-

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6 See, e.g., Rakove, J. (2010). *Revolutionaries*. New York: Houghton Mifflin Harcourt; Wood, G. S. (2002). *The American Revolution - A History*. New York: The Modern Library; Hunt, L. (2008). *Inventing Human Rights: A History* (Kindle ed.). New York: W. W. Norton & Company; Israel, J. (2014). *Revolutionary Ideas*. Princeton: Princeton University Press; Jacobson, A. J., Schlink, B. and Cooper, B. (2000). *Weimar* (Cooper, Caldwell, Cloyd, Hemetsberger, Jacobson and Schlink, Trans.). Berkeley: Univ of California Press; Fioravanti, M. (2001). *Constitución: de la Antigüedad a Nuestros Días* (Neira, Trans.). Madrid: Editorial Trotta.

7 See Rawls, J. (1999). *A Theory of Justice* (Revised ed.). Cambridge (MA): Belknap Press; Rawls, J. (2005). *Political Liberalism*; Dworkin, R. (1986). *Law's Empire*. Cambridge (MA): Belknap Press; Dworkin, R. (1965). Does Law Have a Function? A Comment on the Two-Level Theory of Decision. *The Yale Law Journal*, 74(4), 640-651; Waldron, J. (2006). Are Constitutional Norms Legal Norms? *Fordham Law Review*, 75, 1697-1713; Waldron, J. (2009). Can There Be a Democratic Jurisprudence? *Emory Law Journal*, 58, 675-712; Waldron, J. (2013). Separation of Powers in Thought and Practice. *Boston College Law Review*, 54(2), 433-468; Alexy, R. and Rivers, J. (2010). *A Theory of Constitutional Rights*. New York: Oxford University Press; Kelsen, H. (2013a). *The Essence and Value of Democracy* (Graf, Trans.). Lanham: Rowman & Littlefield; Kelsen, H. (2009). *General Theory of Law and State* (Wedberg, Trans.). Clark: The Lawbook Exchange, Ltd; Schmitt, C. (1985). *Political Theology* (Schwab, Trans.). Cambridge (MA): The MIT Press; Hayek, F. A. (1998). *Law, Legislation and Liberty*. London: Routledge; Derrida, J. (1990). Force of Law. *Cardozo Law Review*, 11(5-6), 920-1045; Derrida, J. (2012). *Negotiations* (Rotenberg, Trans.). Stanford (CA): Stanford University Press; Ackerman, B. (1993).

ology to understanding the meaning of constitutionalism in modern societies cannot be overrated, and so we must also invoke the research advanced by Jürgen Habermas, Niklas Luhmann, Marcelo Neves and Günther Teubner.<sup>8</sup> More recently, economic and institutional theory has provided lots of insights on the role that law — and constitutions — play in providing a structural framework of costs and incentives to individuals and businesses, and so one cannot forget to mention at least Elinor Ostrom, Douglass North, Adam Przeworski, Eric Posner, Robert Cooter, Jon Elster and, more recently, Daron Acemoglu and James Robinson.<sup>9</sup>

Of course, I could not do justice in this already huge list of names to all those many theorists who have made strong contributions to our knowl-

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*We the People: Foundations*. Cambridge: Harvard University Press; Ackerman, B. (1997). Temporal Horizons of Justice. *The Journal of Philosophy*, 94(6), 299-317; Ackerman, B. (1999). Revolution on a Human Scale. *The Yale Law Journal*, 108(8), 2279; Ackerman, B. (2000). *We the People: Transformations*. Cambridge: Harvard University Press; Ackerman, B. (2014). *We the People: The Civil Rights Revolution*. Cambridge: Harvard University Press; Levinson, S. (1995). *Responding to Imperfection*. Princeton: Princeton University Press; Levinson, S. (2011). *Constitutional Faith*. Princeton: Princeton University Press.

- 8 See Habermas, J. (1996). *Between Facts and Norms*. Cambridge: MIT Press; Habermas, J. (2001). Constitutional Democracy: A Paradoxical Union of Contradictory Principles? *Political Theory*, 29(6), 766-781; Luhmann, N. (2004). *Law as a Social System* (Ziegert, Trans.). Oxford: Oxford University Press; Luhmann, N. (2010). *Los Derechos Fundamentales como Institución*: Universidad Iberoamericana; Luhmann, N. (2014). *A Sociological Theory of Law*. New York: Routledge; Neves, M. (2011). *A Constitucionalização Simbólica*. São Paulo: Martins Fontes; Neves, M. (2013). *Transconstitutionalism*. Portland: Hart Publishing; Teubner, G. (1993). *Law as an Autopoietic System*. Oxford: Blackwell; Teubner, G. (2012). *Constitutional Fragments: Societal Constitutionalism and Globalization*. Oxford: Oxford University Press.
- 9 See Ostrom, E. (1990). *Governing the Commons: The Evolution of Institutions for Collective Action*. Cambridge: Cambridge University Press; Ostrom, E. (2009). *Understanding Institutional Diversity*. Princeton: Princeton University Press; Przeworski, A. (2010). *Democracy and the Limits of Self-Government*. Cambridge: Cambridge University Press; Posner, R. A. (2000). Cost-Benefit Analysis: Definition, Justification, and Comment on Conference Papers. *The Journal of Legal Studies*, 29(S2), 1153-1177; Cooter, R. (2002). *The Strategic Constitution*. Princeton: Princeton University Press; Elster, J. (1988). Economic Order and Social Norms. *Journal of Institutional and Theoretical Economics (JITE)* / *Zeitschrift für die gesamte Staatswissenschaft*, 144(2), 357-366; Elster, J. (2000). *Ulysses Unbound*. Cambridge: Cambridge University Press; Acemoglu, D. (2005). Constitutions, Politics, and Economics: A Review Essay on Persson and Tabellini's *the Economic Effects of Constitutions*. *Journal of Economic Literature*, 43(4), 1025-1048; Acemoglu, D. and Robinson, J. (2012). *Why Nations Fail: the Origins of Power, Prosperity and Poverty* (Kindle ed.). New York: Crown Publishers.

edge of constitutions in the last few decades and who were not listed. My point here is not to appraise their contributions, but to justify the claim advanced here. And, in order to do so, I must differentiate the proposal hereinafter developed from the theoretical body of other disciplines, highlighting the specific contributions of an evolutionary approach to legal theory. In this sense, the first question I want to address is quite straightforward: are we really in need of an evolutionary perspective to understand constitutionalism? After all, what should we gain from studying constitutionalism from *another* approach, considering the fruitful insights the already existing perspectives have already provided? Do we gain anything at all that we did not have within the theoretical body of the already existing set of disciplines?

In this chapter, I argue that an evolutionary perspective offers new insights concerning the understanding not only of legal dynamics, but specifically of the emergence of constitutional law, its mode of change and its specific function in societal<sup>10</sup> organization. In this sense, the quick and dirty answer to the proposed question would be that the adoption of an evolutionary perspective allows us to see theoretical problems and solutions in legal theory that we could not see through the lenses of alternative theories.

In order to understand this point, it is important to clarify what I mean by adopting an evolutionary approach. Scholars and legal practitioners are used to talk about legal evolution in a usual, but wrong, sense. They assume that law evolves when it develops from a primitive legal system to a more complex one, usually the kind of legal order where they carry their lives. In this sense, they say that Western law, based on respect for human rights, separation between church and state and on democratic participation, is a more developed system than the alternatives, both from the past and from the present. Legal history is seen as the history of how the normative institutions of the present became what they are today, and legal evolution is conceived of as the unfolding of law to its full potential, changing to "better" forms of law.

Alan Watson's *The Evolution of Western Private Law* is a major example of this way of thinking. The intent of the book is clear from the beginning:

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10 As will clarify in the text, I outline a difference between the concepts of "social" and "societal." The domain of the *social* is related to social relations and social roles, as understood traditionally in sociology. The domain of the *societal* relates to society and its overall structure, as will become clearer in the subsequent chapters.

Watson aims to "show the evolution of Western law as a process,"<sup>11</sup> and in every use of the expression 'legal evolution' in the tome, the term could be replaced by 'development of law'. In the beginning of the first chapter, this is stated more clearly, as he argues that a true concept of legal evolution must be built on history - not abstract theorizing! -, grounded on "individual sources of law, their availability in a given society, and their interaction."<sup>12</sup> The same trend could be observed in other excerpts, where Watson focuses his attention on the unfolding of newer legal institutions from ancient traditions, often stating the direct influence of remote causes such as Justinian's *Corpus Juris Civilis* on the French Code Civil as if the latter were a natural unfolding of the former.<sup>13</sup>

Watson is not alone in this reading of legal evolution. Many authors also refer to the *evolution* of specific legal institutions when they are in fact alluding to their *historical development* or about how that particular branch of law became as sophisticated as it is contemporaneously. There are many academic papers and books about the evolution of democracy, human rights, contracts, property rights and of as many legal institutions as one could possibly devise, and most of them are referring to the history of such appraised institutions.<sup>14</sup>

From the standpoint of evolutionary theory, however, this is a misuse of the expression 'evolution'. First, evolution is not simply history. Evolution, as understood in evolutionary theory — Charles Darwin's theory, in its current formulation —, is change mainly through processes of selection in populations that display variation and inheritance.<sup>15</sup> It is clear that Darwin

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11 In Watson, A. (2001). *The Evolution of Western Private Law*. Baltimore: The Johns Hopkins University Press. p. xi.

12 In Watson, A. (2001). *The Evolution of Western Private Law*. p. 1.

13 Watson, A. (2001). *The Evolution of Western Private Law*. p. 135.

14 See, e.g., Picado, S. (2004). The Evolution of Democracy and Human Rights in Latin America: A Ten Year Perspective. *Human Rights Brief*, 11(3), 1-4; Buerghenthal, T. (1997). The Normative and Institutional Evolution of International Human Rights. *Human Rights Quarterly*, 19(4), 703-723; Owen, D. G. (2007). The Evolution of Products Liability Law. *The Review of Litigation*, 26, 955-989; Anderson, T. and Hill, P. J. (1975). The Evolution of Property Rights: a Study of The American West. *Journal of Law and Economics*, 18, 163-179; Parker, G. (2015). The Evolution of Criminal Responsibility. *Alberta Law Review*, 9, 47-88; Tabusca, S. (2013). Evolution of Human Rights Protection Within the EU Legal System. *Law of Ukraine Legal Journal*, 256-264. These are only some casual examples of my claim.

15 See Godfrey-Smith, P. R. (2009). *Darwinian Populations and Natural Selection*. Oxford: Oxford University Press. p. vii; Hodgson, G. M. and Knudsen, T. (2010). *Darwin's Conjecture*. Chicago: University of Chicago Press. p. vii.

himself did little to link his theory to an evolutionist approach. The first edition of *The Origin of Species* did not even use the word 'evolution', and Darwin wrote 'evolved' only once, usually referring to his theory with phrases like 'descent with modification'.<sup>16</sup> However, it is undeniable that his theory has been explicitly related to evolution, which happened mostly as the result of Herbert Spencer's efforts to popularize his theory.<sup>17</sup>

Taking the evolutionary road in order to explain the processes of emergence and change of legal and political institutions means that we cannot credit them to be simply the result of history. Of course, history matters, and evolutionary explanation is a kind of historical explanation in its own right.<sup>18</sup> As a result, it also takes history seriously, albeit in a very different sense from legal scholars' usual historical approach. When explaining the evolution of a particular institution, legal scholars are usually satisfied if they can elucidate the sociopolitical circumstances and the sequence of statutes and judicial decisions that have led to a specific state of affairs. However, this is not enough if the task is to adopt an evolutionary stance; although all these historical and social elements have to be weighed in, it is also needed to clarify if any evolutionary processes acted in order to select the institution subjected to examination.

Second, there is another sense in which the common usage of the term 'evolution' by legal scholars is mistaken from the perspective of Darwinian theory. Although not always explicitly recognized, it is not unusual, when describing the evolution of a legal institution, to assume a *biased normative presumption* in favor of the institutions of the present when comparing them with those of the past. As a result, evolution is understood as a ladder that leads to better institutions. History is an arrow of progress that always leads to the best possible world – not surprisingly, and, ethnocentrically biased, *our own contemporary world*.<sup>19</sup>

The political scientist Adam Przeworski calls this the *retrospective criterion*, which is epistemologically unjustified (and unfair?) not only to the past, but also to the present times.<sup>20</sup> As ourselves, the citizens of the 18th century had no idea of the future results of their actions, and surely their

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16 On this point, see Hodgson, G. M. and Knudsen, T. (2010). Darwin's Conjecture. p. 30.

17 See Bowler, P. J. (1989). *Evolution*. Berkeley: University of California Press. p. 251.

18 See Beatty, J. and Desjardins, E. C. (2009). Natural Selection and History. *Biology & Philosophy*, 24(2), 231-246.

19 See Przeworski, A. (2010). Democracy and the Limits of Self-Government. p. 3.

20 See Przeworski, A. (2010). Democracy and the Limits of Self-Government. p. 8.

political ideals were far from being the same as ours. We simply are not justified in reading their actions as if they were trying to build the kinds of institutions that we came to have *nowadays*. No matter what their conscious objectives were, the plurality of historical, political, economic and sociological circumstances brings contingency into play and the certainty that the resulting *status quo* will be far from the intended purposes. Reading our present state of affairs as the necessary result of direct will is a mistake.<sup>21</sup> Nevertheless, it would be also a mistake to conceive of them as a product of pure randomness, a simple succession of chaotic events.

These are good reasons for rejecting this traditional approach to legal evolution, but it does not mean that the insight that law is a product of evolution should be abandoned. On the contrary, we should take this idea seriously from the very beginning and understand evolution as proposed by Darwinian evolutionary theory. This assertive raises an immediate question: how can evolutionary theory be applied to law, if it has been elaborated in order to explain biological phenomena? This is a legitimate question that deserves to be answered, and will be addressed in this and in the following chapters.

Nonetheless, Darwinian processes are not limited to the biological world and, given some conditions, we might expect evolutionary processes to arise in other contexts as well.<sup>22</sup> Acknowledging this point brings us to the main question of this chapter: *to what extent can evolutionary theory contribute to the understanding of how constitutionalism have emerged and evolved?*

After all, constitutional law has been studied and explained through many theoretical lenses. Legal and moral philosophers, sociologists, historians, economists and many more scholars have discussed and unveiled most of constitutionalism tenets and how its institutions innovated not only in the legal field but also in the sociocultural framework of modern civi-

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21 My claim is not that all historians adopt such a naïve point of view about the evolution of society, but that this is a common-sense understanding among many legal scholars. Historiography has progressively abandoned this approach at least since the late 1920s, when the *Annales d'Histoire Economique et Sociale* developed an interdisciplinary paradigm through the adoption of models from fields other than the social sciences. See Hobsbawm, E. (2011). *On History* (Kindle ed.). London: Weidenfeld & Nicolson. p. 1206. On a late history of the Annales School, see Hunt, L. (1986). French History in the Last Twenty Years: The Rise and Fall of the Annales Paradigm. *Journal of Contemporary History*, 21(2), 209-224.

22 See Mesoudi, A. (2011). *Cultural Evolution: How Darwinian Theory can Explain Human Culture and Synthesize the Social Sciences*. Chicago: University of Chicago Press; Godfrey-Smith, P. R. (2009). Darwinian Populations and Natural Selection.

lizations. What should we gain, then, by studying constitutionalism from the perspective of evolutionary theory? This is the subject of discussion in this chapter, which will debate this issue from two different perspectives.

Firstly, this approach is important to notice that, although not so popular nowadays, there is a long tradition in legal theory of using an evolutionary approach as a point of reference. This is not a new insight in legal theory at all – even though legal scholars have forgotten this honorable tradition – and will be the subject of analysis in the first section of the chapter. I will present a historical background of the relationship between legal theory and evolution in order to describe the foundations of a tradition that began in the 19th century, but which has been almost forgotten by mainstream legal philosophy circles in the last few decades. Nowadays, only a few legal scholars have been dedicated to these issues and only in marginal academic spaces, which is something to be regretted.<sup>23</sup> My purpose is not merely historical, though; by describing this tradition, it will be possible to evaluate how legal scholars have derived their theoretical assumptions from evolutionary thought in order to explain the legal phenomenon.

Secondly, a justification for an evolutionary explanation of constitutionalism will be provided. Even though many legal scholars have attempted to provide evolutionary explanations for law *per se*, almost none of them have aimed to study the emergence of constitutionalism from an evolutionary perspective. In the second section of this chapter, therefore, I offer some reasons for undertaking the challenge of explaining constitutionalism from a strictly Darwinian evolutionary perspective, with the explicit purpose of justifying the broader project and of stating some assumptions for the other chapters. In this sense, the main question of the chapter will be

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23 See, v.g., Zamboni, M. From "Evolutionary Theory and Law" to a "Legal Evolutionary Theory." *German Law Journal*, 09(4), 515-546; Zamboni, M. *Evolutionary Theory and Legal Positivism: A Possible Marriage*. Working paper. Retrieved 01/11/2014, from <http://goo.gl/UYDT9L>; Erhard, O. (2003). *Evolution and Constitution: the Evolutionary Selfconstruction of Law*. Boston: Kluwer Academic; Jones, O. D. (2001). Evolutionary Analysis in Law: Some Objections Considered. *Brook L Rev*, 67, 207; Gommer, H. (2012). The Biological Essence of Law. *Ratio Juris*, 25(1), 59-84; Dyeve, A. Law and the Evolutionary Turn: The Relevance of Evolutionary Psychology for Legal Positivism. *Ratio Juris*, 27(3), 364-386; Monahan, J. Could "Law and Evolution" be the Next "Law and Economics"? *Virginia Journal of Social Policy the Law*, 8(1), 123-128; Ruhl, J. B. (1996). The Fitness of Law: Using Complexity Theory to Describe the Evolution of Law and Society and Its Practical Meaning for Democracy. *Vanderbilt Law Review*, 49, 1406-1490; Zaluski, W. (2009). *Evolutionary Theory and Legal Philosophy*. Cheltenham: Edward Elgar.



debated in this section: *why do we need an evolutionary approach to constitutionalism?* Up to that moment, I will have discussed how legal theory has taken advantage of evolutionary theories to explain law generally, and not in order to account for a specific field such as constitutional law.

In sum, the purpose of this section is to put forward some substantive gains that constitutional theory might achieve by adopting an evolutionary approach, and to assert a main point that will be discussed later: *constitutionalism is an evolved institutional structure that organizes cooperation in complex societies. But how does it fit into the theory of cooperation from an evolutionary point of view?*

By addressing these questions, I hope to define and justify precisely the scope of the research project, introducing the subject that will be better discussed in the next chapters.

### 1.1. *Legal Theory and Evolution: A Historical Background*

The idea that law somehow evolves is deeply established in legal thought, but mostly as a metaphor.<sup>24</sup> As I have already mentioned, it is not uncommon to hear that law evolves in order to explain how it became what it is nowadays, or that it adapts to its 'social environment', without further elucidation of what either 'adaptation' or 'environment' means. Besides this metaphorical common sense referral of legal evolution, there is also a long tradition in jurisprudence that took the metaphor of biological evolution seriously and aimed to explain legal phenomena within an evolutionary framework.

Here, I will follow E. Donald Elliott's paper *The Evolutionary Tradition in Jurisprudence* as a guideline, since it is one of the best essays on the subject. According to the Yale Law School Professor, during the 19th century many legal theories assumed as a principle that law was somehow shaped by its environment.<sup>25</sup> Not all of these theories were influenced by Charles Darwin's *On the Origin of Species*, but all of them followed the major evolutionist trend in biological thought of the period. Evolutionism became very popular by the end of the 18th century as a result of many scientific discoveries that supported the conclusion that animal species changed over time.

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24 See Elliott, E. D. (1985). The Evolutionary Tradition in Jurisprudence. *Columbia Law Review*, 85, 38-94.

25 See Elliott, E. D. (1985). The Evolutionary Tradition in Jurisprudence. p. 39.



Before the beginning of the 19th century, Georges Cuvier had already published conclusive research that showed differences between living elephants and those from the fossil records, which also showed that some species – such as mammoths — had gone extinct. In 1788, James Hutton described how geological processes could operate gradually through long periods of time, and William Smith, in the 1790s, developed the still used geological methodology of ordering rock strata through the careful examination of fossils in the geological layers. These exciting discoveries in the field of geology continued during the first half of the 19th century, when Charles Lyell published his *Principles of Geology*, which would be later a major influence on Darwin.

In the field of biology, those times also saw the publication of Jean-Baptiste Lamarck's *Philosophie Zoologique* (1809), and the important contributions to the theme offered by Erasmus Darwin (Charles Darwin's grandfather), Robert E. Grant and Richard Owen.<sup>26</sup> When Darwin published *On the Origin of Species*, in 1859, evolutionism was already a major trend in European scientific thought.

Darwin's main contribution, in this sense, was not the idea of evolution *per se*, but his proposal of a naturalistic mechanism that could explain why evolution happens — natural selection. My purpose here is not to detail their work or to provide a broad description of evolutionist history, but to state a broader claim. Even if the legal scholars of the 19th century were not experts in Biology, it is clear that evolutionism as a respectful theoretical tradition was diffused in their scientific cultural background. As a result, these ideas influenced legal philosophy, a claim that can be demonstrated by observing the fact that many evolutionist legal theories were developed in that century, even if not based on a full and correct understanding of evolution — or in any particular evolutionist theory at all.<sup>27</sup>

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26 See Bowler, P. J. (1989). *Evolution*. pp. 81-82, p.130-134, p.156.

27 According to E. Donald Elliott: "I consider theories about the nature and sources of law to be 'evolutionary' if they propose that the law is shaped by its environment in a way that is analogized explicitly to the theory of evolution in biology: namely, the theory, usually attributed to Charles Darwin, that the forms of living things are shaped by environmental conditions, not by the design choices of a Creator. By referring to legal theories as 'evolutionary,' I do not mean to imply, however, that they are based on a correct understanding of evolutionary theory in biology. My central concern is the effect that evolutionary ideas have had on legal thought, not whether the lawyers got their biology right." In Elliott, E. D. (1985). *The Evolutionary Tradition in Jurisprudence*. p. 39.

E. Donald Elliott divides theories of legal evolution into four basic groups: the *social*, the *doctrinal*, the *economic*, and the *sociobiological* approaches.<sup>28</sup>

Social theories of legal evolution claim that law is not an autonomous system, but part of the broader social system. Law evolves only in the sense that it follows the changes that happen in language, culture, politics and economy. Elliott highlights the role of three major contributors to this perspective: Savigny, Maine and Wigmore.

Friedrich Karl von Savigny, the German legal philosopher associated with the historical school of jurisprudence, had a major influence on theories of legal evolution due to his emphasis on history instead of abstract theorization. Lauded as the "Darwin of the science of law" in an article published in 1910 in the journal of the British Institute of International and Comparative Law,<sup>29</sup> Savigny advocated, in his *Of the Vocation of Our Age for Legislation and Jurisprudence* (1814), an organically progressive jurisprudence, a strong defense of the common law against the movement for codification.<sup>30</sup> His argument was based on a theory of stages of legal development, built over an analogy to biological evolution as understood before Darwin's theory of natural selection. Law should evolve gradually through stages, and not through radical change — an explicit criticism of the French Revolution and the resulting codification movement.<sup>31</sup> The evolution of law, in Savigny's perspective, derived from two evolutionary forces: custom and jurisprudence, in opposition to the conscious and rational enactment of legislation.<sup>32</sup>

Savigny's emphasis on history was highly influential. Donald Elliott mentions the work of the British jurist Henry Maine as one of the intellectual heirs of the historical school. His most influential book, *Ancient*

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28 See Elliott, E. D. (1985). The Evolutionary Tradition in Jurisprudence. p. 40.

29 See de Montmorency, J. E. G. (1910). Friederich Carl Von Savigny. *Society of Comparative Legislation Journal*, 11(1).

30 See von Savigny, F. K. (1831). *Of The Vocation of Our Age for Legislation and Jurisprudence* (Hayward, Trans.). London: Littlewood & Co. Old Bailey.

31 In Savigny's own words: "During this period [of the French Revolution] the whole of Europe was actuated by a blind rage for improvement. All sense and feeling of the greatness by which other times were characterized, as also of the natural development of communities, all, consequently, that is wholesome and profitable in history, was lost." See von Savigny, F. K. (1831). *Of The Vocation of Our Age for Legislation and Jurisprudence* pp. 20-21. See also, on the debate between Savigny and Thibau about codification in France, Bobbio, N. (1999). *O Positivismo Jurídico* (Pugliesi, Trans.). São Paulo: Cone Editora. pp. 57-62.

32 See Elliott, E. D. (1985). The Evolutionary Tradition in Jurisprudence. p. 42.

*Law*,<sup>33</sup> was published in 1861, only two years after the publication of Darwin's masterpiece — a fact that has left much room for speculation on the naturalist influence on Maine's work.<sup>34</sup> Paralleling Savigny's proposal, Maine also believed that social evolution proceeded through sequential and gradual stages, from less evolved to more progressive societies. In the first stage, the legal system is based on the judgment of kings, but they are mere commands, not qualifying as *true* law.<sup>35</sup> The main feature of the second stage, the "Customary Law," is the rule of aristocracies, which results from the replacement of the king's power by a bureaucratic council. According to Maine, this stage already conceives of law as a body of rules and sets the framework for customary law and, later on, to the third stage, the "Era of Codes," when codification replaces custom as the main source of law.<sup>36</sup>

Maine's contribution to an evolutionary theory of law went further than only describing the stages of legal evolution; he also envisaged the mechanisms through which evolution would occur. Legal fictions,<sup>37</sup> equity and legislation were the main forces that propelled legal change.<sup>38</sup>

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33 See Maine, H. S. (1906). *Ancient Law*. New York: Henry Bolt and Company.

34 See Elliott, E. D. (1985). *The Evolutionary Tradition in Jurisprudence*. p. 43. It is important to notice that Darwin was mentioned in the appendix of the book, albeit only in a comment concerning speculations about the first human societies. See Maine, H. S. (1906). *Ancient Law*. p. 421.

35 In Maine's words: "A true law enjoins on all the citizens indifferently a number of acts similar in class or kind; and this is exactly the feature of a law which has most deeply impressed itself on the popular mind, causing the term "law" to be applied to mere uniformities, successions, and similitudes. A *command* prescribes only a single act, and it is to commands, therefore, that "Themistes" are more akin than to laws. They are simply adjudications on insulated states of fact, and do not necessarily follow each other in any orderly sequence." See Maine, H. S. (1906). *Ancient Law*. p. 8.

36 See Maine, H. S. (1906). *Ancient Law*. pp. 5-16.

37 This is the definition of legal fiction proposed by Maine: "But now I employ the expression 'Legal Fiction' to signify any assumption which conceals, or affects to conceal, the fact that a rule of law has undergone alteration, its letter remaining unchanged, its operation being modified. The words, therefore, include the instances of fictions which I have cited from the English and Roman law, but they embrace much more, for I should speak both of the English Case-law and of the Roman *Responsa Prudentum* as resting on fictions. Both these examples will be examined presently. The *fact* is in both cases that the law has been wholly changed; the *fiction* is that it remains what it always was." See Maine, H. S. (1906). *Ancient Law*. p. 25.

38 See Maine, H. S. (1906). *Ancient Law*. p. 24.

Donald Elliott highlights two points concerning the relationship between Maine's theory and Darwinism. First, evolution is not understood as variation of traits within a population, as in Darwin's, but as evolutionary stages through which societies evolve. This might have been an influence from Herbert Spencer's theory of evolution, who also believed that evolution proceeded through stages, from simpler forms to more complex ones.<sup>39</sup> Synthetizing Spencer's theory, Derek Freeman argued that Spencer thought that human social change mirrored biological evolution, transmitting slowly accumulated traits from one generation to the next. As a result, institutional change could not be quick paced, as social evolution also depended on "small successive modifications."<sup>40</sup>

In addition, Maine developed a selectionist approach towards law, according to which the norms adopted by a community are those that were "on the whole best suited to promote its physical and moral well-being."<sup>41</sup> Again, this is not supported from a standard Darwinian point of view, since it assumes that evolution is always an efficient process. However, Maine at least assumes the evolutionary relationship between legal practices and their effects on society, at least in the sense that the social environment selects legal institutions for its own purposes.

John Henry Wigmore has also developed an evolutionary theory of law. His *Evolution of Law*, a masterpiece with more than 2,000 pages inspired by Maine's project and partially co-authored by Albert Kocourek, was deeply influenced by Darwin. His argument considers how law has been selected by many environments, including social, cultural, political, and geophysical factors, including the population density, the degree of foreign intrusion in internal affairs, and imitation.<sup>42</sup> He also considered the relevance of studying animal behavior and even anticipated some themes discussed by sociobiology and more recent theories of social evolution, such as reciprocal altruism as a mechanism underlying the evolution of cooperation, a theory of property rights emerging among animals, and even a theory of legal evolution grounded on the premise that law is a mechanism that re-

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39 See Elliott, E. D. (1985). *The Evolutionary Tradition in Jurisprudence*. p. 46.

40 In Freeman, D., Bajema, C. J., Blacking, J., Carneiro, R. L., Cowgill, U. M., Genovés, S., Gillispie, C. C., Ghiselin, M. T., Greene, J. C., Harris, M., Heyduk, D., Imanishi, K., Lamb, N. P., Mayr, E., Raum, J. W. and Simpson, G. G. (1974). *The Evolutionary Theories of Charles Darwin and Herbert Spencer [and Comments and Replies]*. *Current Anthropology*, 15(3), 211-237.

41 See Maine, H. S. (1906). *Ancient Law*. pp. 17-18.

42 See Elliott, E. D. (1985). *The Evolutionary Tradition in Jurisprudence*. p. 47.

duces intragroup conflict.<sup>43</sup> Even closer to Darwinian theory, Wigmore also did not think of evolution as a progressive direction, in which one stage anticipated the other and was necessary to achieve more complex organizations. He criticized Maine on this point and argued that legal systems do not follow the same stages or evolutionary direction.<sup>44</sup>

The second group of theories is composed of doctrinal theories of legal evolution. The main difference between doctrinal theories and social theories relies on the fact that these theories take into account not only that evolution happens at the level of societies and only indirectly affects how law changes, but also that legal rules, principles and theory also evolve.<sup>45</sup> In a certain sense, doctrinal theories of legal evolution take into account that law is at least partially an autonomous social system that not only follows social evolution, but also adapts to its surrounding sociocultural environment, unfolding its own evolutionary dynamics.

The major predecessor of doctrinal theories of legal evolution was Oliver Wendell Holmes, Jr. Belonging to the common law tradition, Holmes believed that law is more of a product from the cumulative effect of judicial rulings rather than from a legislator's rational planning. He was highly influenced by Darwinism in the 1870s, particularly because of his association with the Metaphysical Club, which included Charles Peirce and William James, among other pragmatists. Darwinism had a major influence in this circle, and Holmes soon became interested in applying an evolutionary approach to social reality.<sup>46</sup>

According to Holmes' approach, law is like an organic form that evolves through natural selection. In the lectures *The Common Law*, he explores the history of liability, the prevention of harm and the history of contracts, describing how legal rules change over time as if they were randomly produced, by chance, and then are selected by judicial rulings without following any prior guiding rationality.<sup>47</sup> Under his approach, law evolves not only as a result of judicial activity, but also as a response to other social pressures, originating from the community's moral values, political power

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43 See Elliott, E. D. (1985). *The Evolutionary Tradition in Jurisprudence*. p. 48.

44 See Elliott, E. D. (1985). *The Evolutionary Tradition in Jurisprudence*. p. 48.

45 See Elliott, E. D. (1985). *The Evolutionary Tradition in Jurisprudence*. p. 50.

46 See Vetter, J. (1984). The Evolution of Holmes, Holmes and Evolution. *California Law Review*, 72(3), 343-368.

47 See Vetter, J. (1984). *The Evolution of Holmes, Holmes and Evolution*. p. 366; Holmes Jr, O. W. (2009). *The Common Law*. Cambridge: The Belknap Press of Harvard University Press.

and economic factors.<sup>48</sup> He also explored the patterns of legal evolution in a later article published in 1900, *Law in Science and Science in Law*, where, again, he embraced the analogy between evolutionary processes in law and in nature:

"Surely a flower is not more unlike a leaf, nor a segment of a skull more unlike a vertebra, than the executor as we know him is remote from his prototype, the saleman of the Salic law. I confess that such a development as that fills me with interest not only for itself but as an illustration of what you see all through the law - the paucity of original ideas in man, and the slow, coasting way in which he works along from rudimentary beginning to the complex and artificial conceptions of civilized life. It is like the niggardly uninventiveness of nature in its other manifestations, with its few smells or colors or types, its short list of elements, working along in the same slow way from compound to compound until the dramatic impressiveness of the most intricate compositions, which we call organic life, makes them seem different in kind from the elements out of which they are made, when set opposite to them in direct contrast."<sup>49</sup>

Holmes goes further, stating his belief in the autonomy of law and legal evolution: "We have evolution in this sphere of conscious thought and action no less than in lower organic stages, but an evolution which must be studied in its own field."<sup>50</sup>

In this article, he further developed his ideas about how law evolves. First, he states that legal concepts arise in a process that resembles the way species are formed in nature. According to him, legal concepts are the result of selection between competing ideas within particular fields of law, in a process akin to natural selection. Holmes assumed that the three elements of Darwin's theory — variation, differential fitness and reproduction — were also present in legal evolution.<sup>51</sup> Variation occurs both because there is divergence between how facts are understood, and, as a result, different legal theories are developed. In addition, variation exists because of errors in the transmission of legal principles from one case to the

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48 See Vetter, J. (1984). *The Evolution of Holmes, Holmes and Evolution*. pp. 366-367.

49 See Holmes Jr, O. W. (1900). *Law In Science and Science In Law. The Brief*, 2, 105-127.

50 In Holmes Jr, O. W. (1900). *Law In Science and Science In Law*. p. 107.

51 See Elliott, E. D. (1984). *Holmes and Evolution: Legal Process as Artificial Intelligence* *The Journal of Legal Studies*, 113, 1-35.

other. He believed that the existence of different legal ideas applicable to the same domain would lead to competition for selection, and, in the end, only the fittest would "survive."<sup>52</sup> But what would work as a selector? In nature, the environment selects the variants that will survive. In legal evolution, the judges work as the environment, selecting which legal ideas shall persist or perish. This does not mean that legal evolution is rationally directed by the will of judges, because it is the result of multiple selection processes that are quite independent between themselves. Although every judge decides each case rationally, the resulting state of affairs is unpredictable.

E. Donald Elliott also mentions two other important exemplars of the doctrinal view of legal evolution, Arthur Corbin and Robert Clark. The first one is Arthur Linton Corbin, who developed in *The Law and the Judges* (1914) many of the insights suggested by Holmes and emphasized the creative role of variation in law.<sup>53</sup> In opposition to Holmes, however, and following Savigny, he emphasized the role of the community in legal evolution. According to him, although judges select many legal rules in their judicial activity, it rests on the community the power to accept (and ultimately select) the result of judicial activity by following them and stabilizing their presence as a normative guide.<sup>54</sup>

Robert Charles Clark is also mentioned by Elliott as an exemplar of the doctrinal approach, especially because he rediscovered the evolutionary tradition in the 1970s after a long period of almost 50 years in which evolutionary approaches had been forgotten in Anglo-American jurisprudence.<sup>55</sup> Clark innovated in Holmes and Corbin's argument because he assumed that law not only evolved through judicial decisions, but that

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52 Elliott describes his insight in these terms: "Following his discussion of variation, Holmes turns to his analogy to natural selection, the struggle among competing legal ideas. Once variation produces two or more legal ideas that are arguably applicable, Holmes imagines them in a competition for survival, as Darwin saw life as a competition among animals and plants. Holmes uses the evolution of contract law to illustrate his conception of the common law as analogous to natural selection. He begins with the notion that there were a number of different "legal ideas" that might have served as sources for a theory of contract law: the oath, the sale, the hostage. Holmes sees "a struggle for life among competing ideas" such that there will be an "ultimate victory and survival of the strongest." See Elliott, E. D. (1984). *Holmes and Evolution: Legal Process as Artificial Intelligence* pp. 123-124.

53 See Elliott, E. D. (1985). *The Evolutionary Tradition in Jurisprudence*. pp. 56-57.

54 See Elliott, E. D. (1985). *The Evolutionary Tradition in Jurisprudence*. p. 56.

55 See Elliott, E. D. (1985). *The Evolutionary Tradition in Jurisprudence*. p. 59.



statutes also evolved, being shaped in response to shifting social, cultural and economic environments.<sup>56</sup> He also speculated about the analogy between the evolution of species and legal rules by identifying two general patterns of change.<sup>57</sup> The first one is that the selection of legal rules and principles that lead to cost reduction is usually selected as a result of technological or social changes that create opportunities to lower transaction costs, through the invention of new legal principles and, later, through competition "over the distribution of cost savings."<sup>58</sup> The second pattern occurs as a result of changes in the size of economic units and the subsequent development of new rules.<sup>59</sup>

Besides social and doctrinal theories of legal evolution, Elliott also highlights a third group, which includes *economic theories of legal evolution*. The underlying thesis of this group is that variations in legal rules and principles are selected when they reduce costs and, as a result, promote economic efficiency.<sup>60</sup> As representatives of this group, Elliott highlights the role of Paul Rubin, George Priest, Robert Cooter and Lewis Kornhauser. I would add the role of Richard Posner and F. A. Hayek as important members of this group as well.

Paul Rubin<sup>61</sup> and George Priest<sup>62</sup> disagree with previous legal theories of evolution in asserting that the role of judges is far less decisive than the decisions of litigants in selecting the legal norms that survive.

Rubin was the predecessor of this thesis, which is based on the obvious insight that judges only decide cases that litigants bring into courts. Com-

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56 This excerpt is exemplary to Clark's approach: "Quite surprisingly for a corpus of rules that is an artificial construct of highly self-conscious human intellects, rather than an attempt to rationalize preexisting social relations, the law exhibits an intricacy approaching that of living systems. The analogy suggests a question. Did the corporate tax law, like a mature organism, have its major traits determined by a set of genes fixed in its infancy, or did it grow in a passive, mechanistic way, its important parts constantly shaped and reshaped in response to the shifting pressures of a changing environment?" In Clark, R. C. (1977). *The Morphogenesis of Subchapter C: An Essay in Statutory Evolution and Reform. The Yale Law Journal*, 87, 90-161.

57 See Clark, R. C. (1980). *The Interdisciplinary Study of Legal Evolution. The Yale Law Journal*, 90, 1238-1274.

58 See Clark, R. C. (1980). *The Interdisciplinary Study of Legal Evolution*. p. 1241.

59 See Clark, R. C. (1980). *The Interdisciplinary Study of Legal Evolution*. p. 1242.

60 See Elliott, E. D. (1985). *The Evolutionary Tradition in Jurisprudence*. p. 63.

61 See Rubin, P. H. (1977). *Why Is the Common Law Efficient? The Journal of Legal Studies*, 6, 51-63.

62 See Priest, G. L. (1977). *The Common Law Process and the Selection of Efficient Rules. The Journal of Legal Studies*, 6, 65-82.



mon law is not only the product of judicial activity, but also a joint venture between judges and litigants. In this sense, it is in the hands of litigants which cases will be brought to the legal system and will be further selected to become part of the body of jurisprudence. Rubin argues that litigants help maximizing the efficiency of legal rules because they will most often debate in courts rules which are not already efficient. Otherwise, they will only follow the rule or settle for the results fixed by the existing precedents, considering it will not be possible to achieve a better result through litigation, which will also bring its own economic costs due to lawyer's fees and related expenditures.<sup>63</sup> Priest insists in Rubin's argument, asserting that it is not even necessary that the parties involved be seriously affected by a particular rule in order to test it in courts, because the only necessary assumption for the model to work is that the transaction costs of inefficient rules are positive.<sup>64</sup> The main feature of legal evolution through common law processes is its efficiency in regard to the content of the resulting law and statutory interpretation.

Robert Cooter and Lewis Kornhauser criticized Rubin's thesis, reinstating the role of judges as a main evolutionary force in the evolution of legal systems.<sup>65</sup> According to them, although law can stabilize the most efficient solutions through extrajudicial settlements reached by the litigants themselves, in most cases it evolves through judicial decisions — although judges never know *a priori* which rule is the best one. Their mathematical model, under these assumptions, leads to an interesting conclusion: there is no reason to assume that legal evolution will ever lead to more efficient rules. Although it can happen, this is not necessarily an evolutionary result.<sup>66</sup> The most probable outcome, on the contrary, is one in which efficient rules would be in *equilibrium* with non-efficient rules, leading to a situation where multiple *equilibria* would be admitted.

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63 According to Rubin: "In this paper I show that these issues - the presumed efficiency of the common law and the decision to use the courts to settle a dispute - are related. In particular, this relationship will occur because resorting to court settlement is more likely in cases where the legal rules relevant to the dispute are inefficient, and less likely where the rules are efficient." See Priest, G. L. (1977). *The Common Law Process and the Selection of Efficient Rules*. p. 51.

64 See Priest, G. L. (1977). *The Common Law Process and the Selection of Efficient Rules*. p. 65.

65 See Cooter, R. and Kornhauser, L. (1980). Can Litigation Improve the Law Without the Help of Judges? *The Journal of Legal Studies*, 9, 139-163.

66 See Cooter, R. and Kornhauser, L. (1980). Can Litigation Improve the Law Without the Help of Judges? p. 140.

Besides these authors, it is a surprise that Elliott has understated the work of judge Richard Posner in his analysis of the economic theories of legal evolution. Although he acknowledges Posner's insight that common law's efficiency<sup>67</sup> lies at the very basis of Rubin's and Priest's perspectives, Elliott does not give much credit to Posner as a legal evolutionist. Why is common law efficient, in Posner's account? For him, the very purpose of common law is to promote wealth (his concept of economic efficiency), and the common law is more prone to achieving that than statutory law because it produces more variations to be selected than legislative reasoning, an argument very close to Rubin's proposal.<sup>68</sup>

Nevertheless, Posner contributed to an evolutionary explanation of law in a different way, by considering in a less known paper, *A Theory of Primitive Society, with Special Reference to Law*, how law was an important mechanism to explain cultural evolution in archaic societies.<sup>69</sup> His main purpose in the text is to see "whether and how far the theory that law is an instrument for maximizing social wealth or efficiency — a theory that has proved fruitful in studies of modern law — could be extended to primitive law."<sup>70</sup> According to him, many features of these societies, far from being exclusively the product of a cultural background, are the result of informational costs and uncertainty derived from the inexistence of effective centralized governments.<sup>71</sup> In this situation, the private gains from innovating are negligible because there are no institutionalized property rights that could assure their appropriation. Nevertheless, it should be expected that these ancient societies should rely on insurance principles based on some ethic of redistribution — as it has been described by many anthropologists.

The uncertain conditions of production and storage creates the necessary condition for the emergence of insurance-like institutions, in which hunter-gatherers share the food they obtained with their less fortunate peers, expecting reciprocity in the future. This kind of institution relies

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67 See Posner, R. A. (2014). *Economic Analysis of Law* (9 ed.). New York: Wolters Kluwer. p. 147.

68 See Stake, J. E. (2005). Evolution of Rules in a Common Law System: Differential Litigation of the Fee Tail and Other Perpetuities. *Florida State University Law Review*, 32, 401-424.

69 See Posner, R. A. (1980). A Theory of Primitive Society, with Special Reference to Law. *The Journal of Law and Economics*, 23, 1-53.

70 See Posner, R. A. (1980). A Theory of Primitive Society, with Special Reference to Law. p. 4.

71 See Posner, R. A. (1980). A Theory of Primitive Society, with Special Reference to Law. p. 9.

not only on economic logic, but also on evolutionary mechanisms that sustain cooperation. Posner also explained other features of ancient societies in terms of economic logic and high informational costs, like polygyny, kinship cooperation, family law, contracts, property rights, and even the belief in witchcraft.<sup>72</sup>

Posner's relevance as a theorist of legal evolution relies on how he tried to extend his belief that common law was a guide to efficient results in archaic societies, applying it as a universal evolutionary principle. Bottom-up processes of producing legal expectations in those societies — pretty much like common law — reduce the cost of information and, as a result, produce efficiency and tend to maximize wealth. Whether this conclusion is reasonable is another question, but it does not preclude the relevance of his thesis as an important evolutionary legal theory.

The fourth and last theoretical group explored by Elliott is composed of theories of legal evolution influenced by the sociobiological debate of the 1960s and 1970s. Sociobiologists extrapolate evolutionary mechanisms that cause animal behavior in order to extract direct implications for the understanding of the internal dynamics of human social behavior. This perspective results on a conception of law based on the claim that not only the content of law, but also its form and content, is determined by human evolved instincts and psychological traits.<sup>73</sup> The most important scholarly work mentioned by Elliott as a representative of this group is an important article from Richard Epstein published in 1980.<sup>74</sup> In this paper, Epstein argues that some social instincts and dispositions were selected in the course of human evolution, and many among them are at the roots of legal institutions. He cites four examples that could have emerged through the evolution of our species: the inclination to resist aggressive behavior from peers; the rule of first possession as an indication of special power over certain objects; special obligations concerning the care of younglings by their parents, as a result of the evolutionary mechanism of kin selection; and the innate tendency to fulfill promises and obligations, promoted by reciprocal altruism.<sup>75</sup>

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72 See Posner, R. A. (1980). *A Theory of Primitive Society, with Special Reference to Law*. pp. 29-42.

73 See Elliott, E. D. (1985). *The Evolutionary Tradition in Jurisprudence*. p. 85.

74 See Epstein, R. A. (1980). A Taste For Privacy? Evolution and The Emergence Of A Naturalistic Ethic. *The Journal of Legal Studies*, 9, 665-681.

75 These mechanisms will be explored in chapter 2.

An important and unjustifiable omission from Elliott's important synthesis is the relevance of Hayek's contribution to an evolutionary understanding of law. Elliott justifies his neglect by affirming that Hayek's theory of legal evolution is indistinguishable from his theory of state and his theory of justice, and therefore he would not be included as a specific contributor to legal theory.<sup>76</sup> However, this is a mistake. Hayek's *Law, Legislation and Liberty* (1973) is, beyond any doubt, one of the most celebrated economic evolutionary legal theories of the last decades.

F. A. Hayek's insights are deep and anticipate many questions that will be discussed in this volume. For now, I will highlight three of his major contributions related to the understanding of legal evolution: (i) his consideration of psychological features that underlie normative behavior and which were selected in our evolutionary history; (ii) how law can be explained through mechanisms of cultural evolution; and (iii) a preliminary multilevel approach to the evolution of human institutions.

His insights are evolutionary from the beginning, since he considers that human behavior is highly influenced by cognitive dispositions and instincts that resulted from our *genetic* evolution. These instincts guided much of the social behavior in small ancient groups of hunter-gatherers, and probably configured a "natural morality" based on instincts that ensured cooperation among group members.<sup>77</sup> Hayek assumes, in this sense, an evolved nature of moral rules and morality, linked at first to our own biological nature and, later, when societies become more complex, to cultural evolution. In this sense, he does not assume — as sociobiologists did — a direct link between our biologically based instincts and institutional rules. On the contrary, he acknowledges the relevance of the autonomous process of cultural evolution to explain legal evolution.<sup>78</sup> And, instead of considering that cultural evolution superseded natural evolution, he considers that both processes work together in a coevolutionary process, arguing that "mind and culture developed concurrently and not successively."<sup>79</sup>

A second contribution from Hayek's thought is the conception of law as an evolutionary product explainable through mechanisms of cultural evolution. First of all, his very concept of law is based on the idea of a spontaneously evolved social order (*cosmos*), instead of a rationally organized or-

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76 See Elliott, E. D. (1985). The Evolutionary Tradition in Jurisprudence. p. 39.

77 See Rubin, P. H. and Gick, E. (2004). Hayek and Modern Evolutionary Theory (pp. 79-100): Emerald (MCB UP ). p. 80.

78 See Hayek, F. A. (1998). Law, Legislation and Liberty. p. 155.

79 In Hayek, F. A. (1998). Law, Legislation and Liberty. p. 155.

der (*taxis*).<sup>80</sup> Above all, Hayek believed that law is not a product of conscious evolution, but of a process of selection, production of random variation of rules and survival of the most efficient normative system. Different institutions compete and the most efficient ones survive.<sup>81</sup> This is a shared insight with some economic theories of legal evolution, but Hayek's approach is different in the sense that he does not only take the economic approach seriously, but also present many of the evolutionary issues that were under discussion at the time of his writings in other fields. More specifically, his work highlights the differences between biological and cultural evolution, anticipating many questions that would arise in the following decades.

Third, Hayek developed a preliminary multilevel approach to the evolution of human institutions. Instead of relying strictly on theories about law that take into account only the systemic effects for the whole society, such as Posner's wealth maximizing perspective, he developed a theory that takes into account two selection processes occurring simultaneously in the course of human evolution, involving both *individual and group selection*. The individual predisposition to obey legal/moral rules leads to a simultaneous process of individual selection *and* group selection. In a comment on Hayek's approach, Rubin and Gick highlight this feature of his thought, stating that "the individual predisposition to perceive rules from outside the group (society or subgroups) allows for a process of individual selection as well as group selection."<sup>82</sup>

The individual perceives rules and is responsible for a first selection — whether to obey or not a particular norm, or even participate as an active member of rule creation by formulating new rules. It is not necessary that this decision is a conscious one, because it can also happen as a result of a trial or error process. This particular individual can be more successful in solving old problems than when he followed the old rules and other members of their community can perceive this and follow the new rule. This would be individual selection, but there is also a group selection process. The set of rules (law) adopted within a community frames the order of the society as a whole, and different legal systems affect group-level processes, leading to more or less efficient results which can be selected later on.

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80 On the distinction, see Hayek, F. A. (1998). *Law, Legislation and Liberty*. pp. 35-38.

81 See Hayek, F. A. (1992). *The Fatal Conceit*. London: Routledge. p. 25.

82 See Rubin, P. H. and Gick, E. (2004). *Hayek and Modern Evolutionary Theory*. p. 89.

Moral and legal orders were selected for the simple reason that groups organized by a set of efficient rules "simply survive and increase."<sup>83</sup>

This is a major contribution and an *anticipation* of much of the debate on cultural group selection that followed until our days, as will be discussed later. How does evolution occur on different levels? Is there a cultural evolution? Under which conditions does it occur? Does cultural evolution preclude biological evolution? Hayek discussed many of these questions, and, as such, he occupied a relevant place in the history of ideas on legal evolution. In this sense, Hayek's absence in Elliott's synthesis is odd, given the Austrian philosopher's important contribution.

Besides Hayek, another relevant omission from Elliott's synthesis is the complete absence of important scholarships based on sociological theory. He blatantly ignores the contributions of the German sociologist Niklas Luhmann, who inaugurated an important school of thought in European legal sociology that is still actively producing relevant theoretical work.<sup>84</sup> Luhmann developed an important approach on the evolution of legal systems in many of his books,<sup>85</sup> and adopted Darwinism as part of his profoundly interdisciplinary theoretical framework. However, as his contribution will be discussed later on, and since the purpose of this section is only to highlight the variety of theories that aimed to explain law within an evolutionary perspective, I will only mention Luhmann, for now, as an important theorist of legal evolution.

The main objective of this section was to revisit a rich tradition that had almost been forgotten in legal philosophy. Although evolutionary-based explanations of law have been around for many decades, it is clear that they are not part of current mainstream explanations of the legal phenomenon. Even if Law and Economics is a widespread theory in the Anglo-American world, and part of it has developed some insights from an evolutionary perspective — like Posner's and Cooter's contributions —, its approach relies more on mathematic economic modeling than on a strictly evolutionary approach. We could only speculate about the reasons why theories on legal evolution came to be relegated to a marginal space on legal scholarship. Elliott conjectures that this banishment of social theories

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83 See Hayek, F. A. (1992). *The Fatal Conceit*. pp. 135-136.

84 See, e.g., Teubner, G. (1993). *Law as an Autopoietic System*; Teubner, G. (2012). *Constitutional Fragments: Societal Constitutionalism and Globalization*.

85 See Luhmann, N. (1995a). *Social Systems* (John Bednarz and Baecker, Trans.). Stanford: Stanford University Press; Luhmann, N. (2004). *Law as a Social System*; Luhmann, N. (2012). *Theory of Society* (Barrett, Trans. Vol. 1). Stanford: Stanford University Press.

based on an evolutionist approach probably was the product of the bad political reputation of social Darwinism after the 1950s.<sup>86</sup>

I would add another reason for this: the fact that many of these theories are based on mere speculation, lacking empirical support or better evolutionary models. If this is the case, then we have reasons to suspect that we will see a revival of legal evolutionary theories in the next years, since much of the interdisciplinary work developed quite recently can be appropriated in order to produce more robust theoretical research.

As a matter of fact, it seems that this is the case indeed. Since the late 1990s, the Vanderbilt University hosts the *Society for the Evolutionary Analysis of Law*, which has organized fifteen Conferences on interdisciplinary issues concerning law and evolution. Harvard University Law School is also home to *The Project on Law and Mind Sciences*, an interdisciplinary forum supervised by professor Jon Hanson that has organized since 2007 some Conferences on issues that embrace law, psychology and evolutionary explanations of moral behavior. These are just some examples that highlight the current relevance of the subject on the legal field. Many more initiatives could be mentioned from a broad range of social sciences, from the *Max Planck Institute for Evolutionary Anthropology* to the *Santa Fe Institute*. These institutes have provided funding for much interdisciplinary research that has already led to interesting results on the understanding of the intersections between normative behavior, moral/legal institutions and evolution. This approach, in this sense, can be seen as part of this respectable body of research.

### 1.2. Do We Need an Evolutionary Approach to Constitutionalism?

Despite being an honorable tradition in legal scholarship, evolutionary explanations of law have been relegated to marginal research spaces for a long time. One reason for this apparent situation is that it might not be so clear what are the benefits from evolutionary explanations. After all, as we will see in the next chapters, many conclusions reached through evolutionary analysis could be also derived from historical, philosophical, anthropological or sociological approaches. Why, then, invoke evolution?

This seems to be an even more urgent question to this current project, considering the kinds of explanation usually given in the field of law. Why invoke evolution in order to explain the origins of constitutionalism, a set

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86 See Elliott, E. D. (1985). *The Evolutionary Tradition in Jurisprudence*. p. 38.

of institutions that has already been dissected through many other disciplines? Why do we *need* an evolutionary approach to understand constitutionalism?

In this section, I will explore some possible paths of answer to this question.

The first one stems from the fact that Darwinism imposes a challenge to *all* social sciences. The Darwinian logic based on variation, heredity and differential fitness provides a compelling model of change not only to biology, but also to all social sciences. If the biologist Theodosius Dobzhansky once said that "nothing in biology makes sense except in the light of evolution,"<sup>87</sup> Peter Richerson and Robert Boyd state that "nothing about *culture* makes sense except in the light of evolution."<sup>88</sup> Like animal and vegetal species, societies, social systems and culture also evolve. And, by affirming their evolution, I mean that they evolve in the Darwinian sense, as they present all the necessary features for the ignition of the evolutionary process: variation, inheritance (reproduction) and differential fitness. Of course, this claim must be justified and I intend to provide substantiation for this strong statement. If this is the case, then, we might hope that legal scholars have to take evolutionary theory into account in order to explain the evolution of legal phenomena, including constitutionalism.

Another reason for undertaking a project of evolutionary analysis is acknowledging that it offers a consilient perspective. One of evolutionary theory's tenets is the denial that complexity arises out of nothing. Complex systems emerge out of simpler systems, and not as *fiat*. As the philosopher Daniel Dennett says in his *Darwin's Dangerous Idea*, there is no *skyhook* in nature that guides evolution as if it were planned by an intentional being out of nothing. There are no shortcuts, no ways of building complex organisms without relying on slightly simpler beings. Evolution always proceeds through small, cumulative steps — randomly accumulated innovations selected in the long run, giving support to further evolution.<sup>89</sup> To this effect, the evolution of complex systems is straightforwardly connected to past evolutionary accumulations, resting no gaps between the mechanisms operating in different levels.

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87 See Dobzhansky, T. (1973). Nothing in Biology Makes Sense except in the Light of Evolution.

88 In Richerson, P. J. and Boyd, R. (2008). Not by Genes Alone: how Culture Transformed Human Evolution. p. 252.

89 See Dennett, D. C. (1996a). *Darwin's Dangerous Idea: Evolution and the Meanings of Life*. New York: Penguin. pp. 75-77.



This epistemological project, designated as *consilience* by the biologist Edward O. Wilson,<sup>90</sup> is discussed as an important benefit of the Darwinian approach to constitutional theory. I hope to demonstrate that the evolutionary perspective exposes the links between constitutionalism and not only close disciplines such as political science, sociology and history, but also with far more distant subjects as biology and ethology. By acknowledging that lower levels give support to the emergence of higher levels, it becomes clear that, although higher levels operate through their inner specific logic, their operational logic must be somehow ontologically compatible with the lower level evolved system that gives support to the higher level systemic evolution.

In simpler words, this is only a consequence of accepting the trivial claim that the biological operations of a living system must be coherent with the chemical and physical operations that support the very possibility of the existence of that system. In the same sense, social systems are not only built on the complexity of biological beings, but their internal logic must be also compatible with the behavioral logic of these entities. It must be noticed that it does not mean that this project accepts only bottom-up causation, as if only biology could affect social operations. In a slight reformulation of Wilson's concept of consilience, I'll sustain that evolution can work both ways, either through bottom-up causation or via top-down selective pressures that lead to the evolution of different lower level systems. Some implications of this line of reasoning to constitutional law will be explored in the third subsection of this text, aiming to demonstrate that constitutionalism must be understood as a result of interlinked evolutionary processes.

A third reason for taking the evolutionary road is that we can revisit old problems of legal philosophy from a different perspective. In this tentative and speculative chapter, I will argue that the Darwinian approach allows us to see those problems in a more productive way, incorporating old themes into a new theoretical framework. Questions related to natural law, the legitimate use of political power and the role of norms on regulating behavior — among countless others — can be observed through these new lenses. By framing these questions under a Darwinian perspective, we can rediscover them as important issues in jurisprudence not only from the standpoint of a legal philosopher, but also from the perspective of sociology, anthropology and — why not? — biology and ethology.

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90 See Wilson, E. O. (1998). *Consilience among the Great Branches of Learning*.

A fourth justification relates to the fact that an evolutionary perspective allows us to see that legal/constitutional problems, although unique in their own complexity, evoke issues that are similar to problems that arose in the evolutionary history of cooperation. Law and constitutionalism are structures that organize cooperation in a sophisticated level of organization of human societies, but some of the issues they cope with are similar to problems that arose in other stages of the evolution of cooperation. For instance, all structures of cooperation that have arisen in the course of biological evolution, from the emergence of eukaryote cells to the countenance of cancer and the hierarchical line of authority among great apes have to deal with the game-theoretic problem of free-riding. And, since the solutions to this problem are similar in each domain, an evolutionary perspective might provide some insights on how these issues could be solved at the level of legal and constitutional analysis.

Of course, these reasons for adopting an evolutionary perspective in legal research are not exhaustive. They represent only a small fraction of the possibilities in which an evolutionary analysis can help legal scholars understand the problems of their field. Nevertheless, these are important reasons because they impose a methodological cost on the alternative of *not* adopting the evolutionary stance: after all, what would legal scholars lose by using an evolutionary framework to study legal problems? *Nothing at all*; on the other hand, there are many benefits in adopting it, and I hope that these reasons, which will be further explored, can be compelling for those who think otherwise.

### 1.2.1. The Darwinian Challenge to Social and Legal Scholarship

When Charles Darwin published his *On the Origin of Species by Means of Natural Selection*, in 1859, he set a scientific explanation for two phenomena that, before him, were attributed to supernatural explanations. First, he proposed a mechanism that accounted for the amazing diversity of biological entities of the natural world. But, more important for our purposes, he attempted to offer a kind of explanation that could account for complex phenomena.<sup>91</sup> How could intricate adaptations such as eyes, lungs, hearts and brains exist without a conscious mind capable of projecting them in advance?

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91 See Mesoudi, A. (2011). *Cultural Evolution: How Darwinian Theory can Explain Human Culture and Synthesize the Social Sciences*. p. viii.

Darwin's answer to this problem was powerful because it provided a consistent, straightforward and practical scientific explanation for these phenomena, based on a set of quite elementary principles: *variation*, *differential fitness* and *inheritance*, with a fourth being a consequence of the first three – *natural selection*.<sup>92</sup> These principles, working on a population of individuals, lead to the accumulation of changes which, over long periods of time, can produce quite complex results, such as the organs alluded to before.

Nonetheless, the Darwinian principles do not work only in the biological world, as is often thought. The British naturalist himself offered some speculative thoughts on the evolution of other complex features in the *sociocultural* world. In *The Descent of Man*, Darwin explicitly proposed that natural selection could account for cultural evolution and the emergence of different languages, in a process similar to the evolution of different species:

"The formation of different languages and of distinct species, and the proofs that both have been developed through a gradual process, are curiously the same. But we can trace the formation of many words further back than in the case of species, for we can perceive that they have arisen from the imitation of various sounds, as in alliterative poetry. We find in distinct languages striking homologies due to community of descent, and analogies due to a similar process of formation. (...) Languages, like organic beings, can be classed in groups under groups; and they can be classed either naturally according to descent, or artificially by other characters."<sup>93</sup>

Following this insight that natural selection could be applied to other domains than the biological, many researchers have applied Darwin's three principles to explain evolution in the domains of social sciences that had been so far excluded from evolutionary analysis. Issues such as the evolu-

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92 See Mesoudi, A. (2011). *Cultural Evolution: How Darwinian Theory can Explain Human Culture and Synthesize the Social Sciences*. p. viii.

93 See Darwin, C. (1981). *The Descent of Man and Selection in Relation to Sex*. Princeton (NJ): Princeton University Press. pp. 59-60.

tion of scientific theories,<sup>94</sup> technological change,<sup>95</sup> military strategies,<sup>96</sup> business organization<sup>97</sup> and economic change<sup>98</sup> have been successfully examined from evolutionary thinking.

For certain, Economics is a major field where evolutionary perspectives have been well accepted. In a classical book on the subject, *An Evolutionary Theory of Economic Change*, Richard Nelson and Sidney Winter argue that firms (businesses) are guided by routines, which would be the equivalent of genes in the economic realm. In a nutshell, routines produce better or worse outcomes (profit) for the firms, and firms with routines that produce the best economic outcomes expand at the expense of the others. The market operates as the environment that selects those who survive and those who do not. In their own words, "[m]arket environments provide a definition of success for business firms, and that definition is very closely related to their ability to survive and grow."<sup>99</sup>

Another important illustration of how relevant the application of Darwinian mechanisms is to investigate issues from domains other than biology is George Basalla's approach to technological evolution.<sup>100</sup> Instead of being the product of the genius of a few individuals, technology is a product of evolution from older artifacts. According to George Basalla, technological evolution is founded on four concepts: novelty, continuity, diversity, and selection. New inventions (novelty) emerge from older artifacts as a result of a process of variation that individuals produce from older products at their disposal. There is no *fiat*; new technologies appear as a result

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94 See Hull, D. L. (1988). *Science as a Process*. Chicago: University of Chicago Press; Campbell, D. T. (2005). Blind Variation and Selective Retention in Creative Thought as in Other Knowledge Processes. *Psychological Review*, 67(6), 380-400.

95 See Basalla, G. (1989). *The Evolution of Technology*. Cambridge: Cambridge University Press; Constant, E. W. (1982). *The Origins of the Turbojet Revolution: Technology and Culture*. See also Brito, M. T. S. (2009). *Nos Trilhos da Inovação: Uma Contribuição Filosófica para a Consolidação de um Modelo para a Evolução Tecnológica*. (Master of Philosophy), Universidade de Brasília, Brasília.

96 See Leonard, S. M. (2001). *Inevitable Evolutions: Punctuated Equilibrium and the Revolution in Military Affairs* (Kindle ed.). Damascus: Penny Hill Press.

97 See Alfred D Chandler, J. (1990). *Scale and Scope. The Dynamics of Industrial Capitalism* (Vol. 248). Cambridge: Harvard University Press), Cambridge.

98 See Nelson, R. R. and Winter, S. G. (1982). *An Evolutionary Theory of Economic Change*. Cambridge (MA): Harvard University Press; Hodgson, G. M. (2004). *The Evolution of Institutional Economics: Agency, Structure and Darwinism in American Institutionalism*. London: Routledge.

99 In Nelson, R. R. and Winter, S. G. (1982). *An Evolutionary Theory of Economic Change*. pp. 9-10.

100 See Basalla, G. (1989). *The Evolution of Technology*.

of continuity between older artifacts and novel ones, which result from them. While [d]iversity is a result of many factors, such as personal tastes and small changes that accumulate in a given period of time, while selection results from many social aspects, such as the economy or military interests.

More important, a growing body of scientific research relies on Darwinian methods to make cultural change intelligible. As a matter of fact, the two aforementioned examples can be understood as illustrations of this perspective as applied to the economic and technological domains.

Issues raised by cultural change are similar to those faced by biologists studying the problem of biological diversity and complexity. Human culture, as biological life, is enormously diverse. As Alex Mesoudi states, "there are approximately 10,000 different religions currently practiced in the world, almost 7,000 different languages spoken, each one of which contains of around half a million words, and 7.7 million patented items of technology in the United States alone."<sup>101</sup>

Legal systems themselves are enormous sources of diversity, not only for the huge differences between the legal orders of distinct countries and the international legal framework, but also for the complexity feature within each of these systems. Each legal order produces an enormous amount of material, which is a source of diversity in their own right, ranging from judicial decisions to legal statutes and roles, courts, and administrative procedures.

The fundamental issue brought by the Darwinian challenge, then, is this: can the complexity and diversity of the human cultural world be explained through the principles proposed by Charles Darwin – variation, differential fitness, and inheritance? As will be further explored in the next chapters, there is evidence that this is the case. There is variation in cultural traits; these cultural variants cannot all occupy the space at their disposal and, as a result, they must compete for epistemic resources (differential fitness); and cultural variants are transmitted from one individual to another (inheritance).<sup>102</sup>

This growing body of evidence indicates that Darwinian processes are also involved in the origins of many features long studied by social scien-

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101 See Mesoudi, A. (2011). *Cultural Evolution: How Darwinian Theory can Explain Human Culture and Synthesize the Social Sciences*. p. ix.

102 See Mesoudi, A. (2011). *Cultural Evolution: How Darwinian Theory can Explain Human Culture and Synthesize the Social Sciences*. pp. 27-34; Blackmore, S. (2000). *The Meme Machine*. New York: Oxford University Press. p. 30.

tists, from anthropologists to economists, sociologists, and – why not? – legal scholars. Darwinian thought, then, imposes a challenge for the social sciences because it is a powerful theoretical framework to understand how complexity emerges. Assuming that societies and legal orders are complex systems that evolve, the Darwinian framework can be a productive toolset for explaining their inception and change.

Besides that, accepting the Darwinian challenge and using its methods in social sciences does not mean abandoning the methods already developed and successfully employed by social theorists. Instead, the evolutionary framework invites us to adopt a *pluralistic* methodology in which the Darwinian toolkit is understood as an abstract framework, which needs the support of the materials, methodologies and theories provided by the social sciences in order to make sense. It is a collaborative work between different epistemological perspectives, not a vindictive project in which a paradigm should replace and bury the other.

The inspiration for this pluralistic approach derives explicitly from David Sloan Wilson and Elliott Sober *Unto Others*. In the conclusion of the book, they discuss how different intellectual traditions adopt such incompatible concepts of functionalism that they seem to be describing different worlds, in spite of discussing the same subject.<sup>103</sup> Through the analysis of their different claims, Wilson and Sober demonstrate that no position can be fully understood without the other. As a result, they propose the adoption of two forms of pluralism. The first one is a pluralism of perspectives, which assume as natural that scientists represent the same processes in different ways. And the second kind of pluralism relates to the diversity of causes of evolutionary change, which require different approaches to explain them adequately. I think that the same point can be made here. Even if substantive advances can be made in the social sciences and in legal theory without adopting an evolutionary paradigm, there is no doubt that new insights can be gained from this perspective. Also, and there is no reason to assume in principle that the new conclusions will erode the theoretical body of the social sciences, as has been argued by some sociobiologists.<sup>104</sup> This is something that only empirical results can settle and, although they have showed the relevance of psychological dispositions to understand so-

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103 See Sober, E. and Wilson, D. S. (1998). *Unto Others*. Cambridge: Harvard University Press. p. 329.

104 See Barkow, J. H., Cosmides, L. and Tooby, J. (Eds.). (1992). *The Adapted Mind*. Oxford: Oxford University Press. pp. 12-13.

cial behavior, nothing thus far has indicated the need of a complete revision of social theory.

Legal scholars should accept the Darwinian challenge and try to formulate their own questions in an evolutionary fashion. By doing this, we might finally accept that law in its current state is not a necessary and final product of human reason, but a result of small steps that were accumulated over centuries as a result of evolutionary forces that can be understood through careful examining. The purpose of this dissertation originates from accepting this challenge in the domain of constitutional law, with the explicit aim to rely on an evolutionary perspective in order to explain the emergence of constitutionalism. As I hope to demonstrate, some new intuitions about the reasons why constitutionalism has emerged and stabilized in the context of modern societies will arise from adopting the Darwinian theoretical stance.

### 1.2.2. Evolutionary Theory Offers a Consilient Approach to Constitutional Theory

In his 1998 book *Consilience: The Unity of Knowledge*, the biologist Edward O. Wilson advocated for the idea of unifying all sciences under one system of thought.<sup>105</sup> This is the heart of the philosophical concept he devises on the book – consilience –, whose origin traces back to William Whewell's 1840 *The Philosophy of the Inductive Sciences*. Whewell defined consilience as a test of the truth of a theory backed by inductive evidence extracted from different sets of facts.<sup>106</sup> Consilience takes place when two inductions, obtained from different classes of facts, happen to coincide. Building on Whewell's insight, Wilson defines consilience broadly as an epistemological thesis according to which principles extracted from different disciplines should be linked together in order to construe a more comprehensive theory about the world.<sup>107</sup>

This ideal has been at the center of the metaphysical project of explaining the natural world since at least the pre-Socratic philosophers of Ancient Greece and their conviction that all phenomena could be reduced to

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105 See Wilson, E. O. (1999). *Consilience: the Unity of Knowledge*. New York: Vintage Books.

106 See Wilson, E. O. (1999). *Consilience: the Unity of Knowledge*. p. 8.

107 See Wilson, E. O. (1999). *Consilience: the Unity of Knowledge*.

the same general laws of nature.<sup>108</sup> The Milesian school assigned to material principles the existence of everything, such as demonstrated by Thales, who declared water to be the foundational principal of everything that exists, and Anaximenes, who thought that air was the organizing principle of nature. Other philosophers have proposed more abstract principles, such as the Pythagoreans and the number; Heraclitus and the perpetual flux; and Parmenides and the immutable.<sup>109</sup>

Many of these themes persisted later on Medieval thought and even after the Scientific Revolution and during the Enlightenment.<sup>110</sup> The idea that nature could be explained through simple and universal principles – specially the Pythagorean notion that numbers, through mathematics, were the universal language through which the world could be explained, endured – and one might say – endures in many epistemological circles.<sup>111</sup> Even if the Renaissance and the Scientific Revolution fractured many ontological premises from the Ancient and Medieval worlds,<sup>112</sup> the belief in a unified metaphysical conceptual body that could account for the explanation of reality still persisted – what Wilson refers to as the Ionian Enchantment.<sup>113</sup>

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108 According to Wilson: "The idea is amplified by what Gerald Holton has called the Ionian Enchantment, the conviction that all tangible phenomena share a common material base and are reducible to the same general laws of nature." In Wilson, E. O. (1999). *Consilience: the Unity of Knowledge*. p. 131.

109 See Bornheim, G. A. (2008). *Os Filósofos Pré-Socráticos* (18 ed.). São Paulo: Editora Cultrix.

110 On the comparison between late Medieval thought and the naturalistic view during the scientific revolution, see Tarnas, R. (1991). *The Passion of the Western Mind* (ebook ed.). New York: Ballantine Books. pp. 713-714.

111 See Tarnas, R. (1991). *The Passion of the Western Mind*. pp. 736-737.

112 On this point, see Koyré, A. (1982). *Estudos de História do Pensamento Científico* (Ramalho, Trans.). Brasília: Editora UnB. pp. 46-47.

113 In Wilson's words: "[...] I had experienced the Ionian Enchantment. That recently coined expression I borrow from the physicist and historian Gerald Holton. It means a belief in the unity of the sciences—a conviction, far deeper than a mere working proposition, that the world is orderly and can be explained by a small number of natural laws. Its roots go back to Thales of Miletus, in Ionia, in the sixth century B.C. The legendary philosopher was considered by Aristotle two centuries later to be the founder of the physical sciences. He is of course remembered more concretely for his belief that all matter consists ultimately of water. Although the notion is often cited as an example of how far astray early Greek speculation could wander, its real significance is the metaphysics it expressed about the material basis of the world and the unity of nature. The Enchantment, growing steadily more sophisticated, has dominated scientific thought ever since. In modern physics its focus has been the unification



Edward O. Wilson sees his approach towards consilience as a direct heir of this tradition. Consilience is the "belief in the unity of the sciences – a conviction, far deeper than a mere working proposition, that the world is orderly and can be explained by a small number of natural laws."<sup>114</sup>

Consilience refers to some epistemological commitments. First, it refers to a *unified* approach towards the different sciences – or, in his words, "the great branches of learning."<sup>115</sup> He believes that the *explanandum* of science, the world, is not a union of cracked parts, but a unified ontological *continuum* and, as such, it encourages the consilience of knowledge in all its disciplines, including the social sciences.<sup>116</sup> In this sense, the sciences reflect an ontological feature of the world and, in principle, they could be unifiable in a single theoretical framework. Wilson assumes from the outset the metaphysical assumption beneath this project, which he features as "a metaphysical world view (...) [that] cannot be proved with logic from first principles (...) [because] its best support is no more than an extrapolation of the consistent past success of the natural sciences."<sup>117</sup>

A second assumption in Wilson's thought is that the sciences are organized hierarchically – as ontological reality also is assumed to be. There is a causation chain that links lower ontological levels, such as physics, chemistry and biology, to higher levels of reality, such as consciousness and the cultural and social levels. The lower levels establish the preconditions through which the higher levels establish themselves.

Although Wilson recognizes this project as entailing an ontological reductionism,<sup>118</sup> this does not mean that the lower ontological levels *determine* the kinds of organization that emerge in the upper levels. Biology

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of all the forces of nature—electroweak, strong, and gravitation—the hoped-for consolidation of theory so tight as to turn the science into a "perfect" system of thought, which by sheer weight of evidence and logic is made resistant to revision. But the spell of the Enchantment extends to other fields of science as well, and in the minds of a few it reaches beyond into the social sciences, and still further, as I will explain later, to touch the humanities." In Wilson, E. O. (1999). *Consilience: the Unity of Knowledge*. pp. 4-5.

114 In Wilson, E. O. (1999). *Consilience: the Unity of Knowledge*. p. 4.

115 See Wilson, E. O. (1999). *Consilience: the Unity of Knowledge*. p. 8.

116 In his words: "If the world really works in a way so as to encourage the consilience of knowledge, I believe the enterprises of culture will eventually fall out into science, by which I mean the natural sciences, and the humanities, particularly the creative arts." In Wilson, E. O. (1999). *Consilience: the Unity of Knowledge*. p. 12.

117 In Wilson, E. O. (1999). *Consilience: the Unity of Knowledge*. p. 9.

118 See Wilson, E. O. (1999). *Consilience: the Unity of Knowledge*. p. 11.

makes the emergence of culture and social reality feasible, but these levels are organized through an inner logic that, although compatible with the lower levels of reality, is complex in its own right, and not fully determined by processes occurring in the lower levels. As a result, there is a causation flow that goes from the laws of physics, chemistry, and biology, and allows for the emergence of social and cultural reality. This causation flow can be determined through backward induction, but it is impossible to forecast events happening in the higher levels based only on information gathered from ontological lower levels. The emergence of ontological levels opens more complexity than it is imaginable in the lower levels. As Wilson argued, "as the distance away from physics increases, the options allowed by the antecedent disciplines increase exponentially. Each branching point of causal explanation multiplies the forward-bound threads."<sup>119</sup>

The idea of consilience, as proposed by Wilson, has been criticized on many grounds, especially for being reductionist, vague and epistemologically naive and superficial. H. Allen Orr, while reviewing the book, states that the proposal presents a number of philosophical problems, such as the mind-body, free will, and the failure of logical positivism, but these issues are faced superficially due to Wilson's overconfidence on the developments of the mind sciences.<sup>120</sup>

In another review, Jerry Fodor states an important distinction that E. O. Wilson does not take into account.<sup>121</sup> As specified by him, there is an epistemological thesis according to which consilience holds that all knowledge could be in principle reducible to the basic fields of science. But there is also a metaphysical thesis, according to which "all the facts supervene on the facts of basic science."<sup>122</sup> The problem – Fodor argues – is that Wilson thinks that epistemological consilience follows from metaphysical consilience, which is not necessarily true. It is possible to hold that all reality is built on the laws of physics without accepting the claim that all sciences can be reduced to physics.

As a matter of fact, I do not agree entirely with Fodor, because he has construed a straw man out of his thesis. Wilson does not sustain that the unification of knowledge comes from reducing everything to the laws of

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119 In Wilson, E. O. (1999). *Consilience: the Unity of Knowledge*. pp. 73-74.

120 See Orr, H. A. (1998). *The Big Picture*. Boston Review. from <http://ow.ly/3xr6oY>.

121 See Fodor, J. A. (1998, Oct). Look! Consilience: The Unity of Knowledge by Edward O. Wilson. *London Review of Books*, 20, 3-6.

122 In Fodor, J. A. (1998, Oct). Look! Consilience: The Unity of Knowledge by Edward O. Wilson.

physics. As the last cited passage shows, he believes that each new layer of reality has a complexity of its own, which is built on the elements enabled by the lower layers. As he says, "As the distance away from physics increases, the options allowed by the antecedent disciplines increase exponentially. Each branching point of causal explanation multiplies the forward-bound threads."<sup>123</sup> We can understand the physics and chemistry underlying the biological processes of cells, but we cannot preview the whole range of cells (and other biological entities) that could evolve based on the same underlying physics and chemistry.

Nonetheless, it is possible to concede to Fodor's criticism on the grounds that Wilson has unjustifiably derived epistemological consilience from the metaphysical kind. Accepting that the emergence of sociocultural reality is built on the ontological potential enabled and structured by the lower layers of physical laws does not entail that all ontological levels must be explained through scientific discourses that can be reduced to the science of physics, in a hierarchic fashion. It is perfectly sustainable that a higher level scientific discourse could not be reduced to physics due to the intrinsically complexity of that level, which can be satisfactorily explained through a specific conceptual framework devised for that specific purpose. As a result, for instance, social systems could only be explained through sociological theories, and not via the laws of physics, and cultural systems could not be reduced to biological explanations. Nevertheless, this does not entail that social or cultural systems are not constrained by underlying processes.

We should distinguish, then, between two concepts of consilience. In the strong form, consilience is what Fodor criticizes. It entails that all knowledge could be unified in a single theoretical set of different – but coherent – theories, each of them dealing with differing domains of reality. Ultimately, however, all theories would derive their scientific validity from their coherence with low-level theories such as physics. It is possible to devise a weaker concept of consilience, though. In this weaker form, consilience is only the acknowledgement that striving for a coherent explanation among different explanatory levels is a possible – though not necessary – endeavor of science and philosophy. As a result, no one is obliged to strive for consilience while construing a theory or doing field work, but nonetheless it is to be admitted that some research can be done on the frontiers of two or more ontological levels, in order to construe theoretical links among different theories.

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123 In Wilson, E. O. (1999). *Consilience: the Unity of Knowledge*. p. 73.

This weaker form of consilience is not unitary. It does not entail that all sciences should be reduced to one single theoretical framework, nor does it exclude the possibility that some theoretical advances can be made in higher-level ontological level explanations without assuming consilience as a necessary assumption. As a result, it preserves pluralism,<sup>124</sup> while assuming that some kinds of scientific explanations can assume consilience as a theoretical framework – especially when dealing with conjectural issues that deal with two or more ontological layers. This is so because evolutionary explanations usually offer external reasons for the emergence of a particular phenomenon. It is concerned with how a particular system has evolved out of its interaction with its environment, allowing much room for other disciplines to explain the particularities of how the system works. Of course, a full understanding of the operations of a system can only be pursued when we take into account both internal and external explanations of how it came to be as it is. In this sense, there is nothing wrong in adopting a pluralistic epistemological perspective, pursuing an equilibrium between evolutionary explanations and the theoretical contributions from more specialized fields.

Evolutionary theory offers a consilient approach compatible with this weaker perspective because it helps understand how complex systems, organized through their own internal principles, emerge out of lower-level systems, without entailing itself as the only possible perspective.<sup>125</sup> This is to say, it offers new lenses to look at the world without asking us to throw away the older ones. As a matter of fact, an evolutionary perspective allows us to retain most of what we already know about a particular field and use that knowledge as a departure point to understand how things came to be that way.

A problematic point in Wilson's concept of consilience relates to the fact that he thinks of causation as a bottom-up process. Physical and chemical laws enable the emergence of biological organization, which in its turn sets the background conditions that allow for the evolution of social beings and culture. But Wilson's argument does not take into account the possibility that the higher levels of organization can also impose constraints on the operations performed in lower ontological layers. As a re-

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124 The lack of pluralism is another ground for criticism against consilience. See King, M. (2013). Against Consilience: Outsider Scholarship and the Isthmus Theory of Knowledge Domains. *Integral Review*, 9, 123-144.

125 See Northrop, R. B. (2010). *Introduction to Complexity and Complex Systems*. Boca Raton: CRC Press. pp. 12-13, p.170-179.

sult, all social sciences should resort to models based on psychology and biology, based on bottom-up processes.<sup>126</sup>

This is why Edward O. Wilson thinks that the explanation model proposed by evolutionary psychologists to explain human cultural behavior is essentially correct. According to evolutionary psychologists, sociologists and anthropologists adopt the Standard Social Science Model (SSSM), a paradigm in which culture creates and molds individual minds and social institutions.<sup>127</sup> Instead, evolutionary psychologists propose the inverse path of causation: individual minds create culture and social institutions (what they call the Integrated Model). According to this view, the SSSM is wrong because it denies the influence of human nature in any relevant sociocultural issue, sustaining a naïve perspective according to which the cultural world is self-sustaining and independent of human psychology and biological constitution.<sup>128</sup> This reading of the social sciences is backed by an understanding by some key scholars, such as Émile Durkheim, Franz Boas and Alfred Kroeber, who advocated the autonomy of social phenomena, based on the famous claim by Durkheim that social facts can only be explained by other social facts.<sup>129</sup>

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126 According to him: "THE FULL UNDERSTANDING of utility will come from biology and psychology by reduction to the elements of human behavior followed by bottom-up synthesis, not from the social sciences by top-down inference and guesswork based on intuitive knowledge. It is in biology and psychology that economists and other social scientists will find the premises needed to fashion more predictive models, just as it was in physics and chemistry that researchers found premises that upgraded biology." In Wilson, E. O. (1999). *Consilience: the Unity of Knowledge*. p. 224.

127 See Wilson, E. O. (1999). *Consilience: the Unity of Knowledge*. p. 204. This view was popularized by Steven Pinker. See Pinker, S. (2002). *The Blank Slate*. New York: Penguin Books.

128 In Barkow, J. H., Cosmides, L. and Tooby, J. (Eds.). (1992). *The Adapted Mind*. p. 22.

129 As Tooby and Cosmides declare: "Durkheim, for example, in his *Rules of the Sociological Method*, argued at length that social phenomena formed an autonomous system and could be only explained by other social phenomena (1895/1962). The founders of American anthropology, from Kroeber and Boas to Murdock and Lowie, were equally united on this point. For Lowie, 'the principles of psychology are as incapable of accounting for the phenomena of culture as is gravitation to account for architectural styles,' and 'culture is a thing *sui generis* which can be explained only in terms of itself.... *Omnis cultura ex cultura*'. Murdock, in his influential essay 'The science of culture,' summed up the conventional view that culture is 'independent of the laws of biology and psychology'." Barkow, J. H., Cosmides, L. and Tooby, J. (Eds.). (1992). *The Adapted Mind*. p. 22.

While some radical social constructionists might hold this kind of thought, the claim that all anthropological and sociological theory is based on the SSSM is not backed by evidence. Functionalist sociology – a long and respectable tradition in the social sciences – is founded on a strict analogy between social and biological processes, which shows much respect for the natural sciences. In addition, it is worth noting that although many social scientists, such as Bronislaw Malinowski and specially Talcott Parsons, sustained that social structures depend on the relationship between society and the biological/psychological structures of human beings; Malinowski, for instance, sustained that social stability can only be warranted if the biological needs of society's individual members are reasonably satisfied.<sup>130</sup> In the same vein, Parsons' sociological theory explicitly acknowledges the existence of personality systems, taking into account the role of psychological dispositions and the agent's cognitive states in the construction of social systems.<sup>131</sup> As a matter of fact, for him, cultural systems are not only "social facts," but their functional role consists precisely on integrating individuals (personality systems) within a single symbolic system, which assumes a need of taking into account an understanding of individual psychology in order to explain social phenomena.

The contemporary sociologist Niklas Luhmann is also a good example of social scientist that looked for integration between these domains, although he also strived for the maintenance of sociology's autonomy. Much of his sociological theory might be indebted to Parsons, and, as the American sociologist, Luhmann has also acknowledged the role of psychology – not as a subject of study by sociologists, but as a relevant background to social facts. Psychology (psychic systems) is part of the environment of social systems and, as such, although it does not take part in communication processes at the social level, it imposes pressures (noise) which social communication incorporates and translates into the various social systems.<sup>132</sup>

This brief analysis shows that the view of evolutionary psychology about the SSSM is nothing but a straw man. The integrated model proposed by Tooby and Cosmides is problematic because it is based on a one-way bottom-up causation process between biology and culture/society. Biology

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130 See Malinowski, B. (2002). *A Scientific Theory of Culture and Other Essays*. New York: Routledge. p. 140.

131 See Parsons, T. (2012). *The Social System*. New Orleans: Quid Pro Books. p. 530.

132 See, e.g., Luhmann, N. (1995a). Social Systems. pp. 255-277.

constrains culture, or, in Wilson's words, "genes hold culture on a leash."<sup>133</sup> However, this is not the only possibility for conceiving a consilient approach to the relationship between legal theory, sociology, psychology and human biology through an evolutionary approach. It is also possible to concede that top-down processes also influence the biological and, especially, the psychological processes; and much of what is understood under the label of SSSM might be research backed by this assumption. This is what is at stake when sociologists talk of socialization – in Parsons' terms, the process of integrating a personality system into a cultural system through the internalization of its values.<sup>134</sup> This is a top-down process of causation, because, through socialization, an individual is causally integrated into a sociocultural system and can be held as a member of that system. Another possibility would be that the operations of social and cultural systems affected the very course of human genetic evolution, imposing environmental pressures that would not exist otherwise – the process which came to be known as gene-culture coevolution. As Peter Richerson and Robert Boyd affirm, maybe culture is on a leash, "but the dog on the end is big, smart, and independent. On any given walk, it is hard to tell who is leading who."<sup>135</sup>

Albeit consilience has been founded on such unsustainable premises, its ideal of integrating sciences and of acknowledging that social reality is founded on natural bases is a worthwhile one. If we abandon the radical embracing of assumptions such as hierarchy among sciences, unitarianism, and the strict adoption of bottom-up causation, this ideal can still be sustainable in a weaker – but epistemologically stronger – sense.

Constitutional theory can benefit from the adoption of a consilient perspective in many ways, especially through an evolutionary approach, which can offer a meta-theoretical framework to organize the relationship between legal theory, sociology and other sciences. In this regard, it is possible to advance a new angle in constitutional law, especially in what concerns the emergence of constitutionalism and its change. The Darwinian point of view can help construe a structured theory of how constitutionalism emerged out of the context of the 16th-19th century not only from the

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133 In Wilson, E. O. (2004). *On Human Nature*. Cambridge: Harvard University Press. p. 167.

134 See Parsons, T. (2012). *The Social System*. pp. 209-211.

135 In Richerson, P. J. and Boyd, R. (2008). *Not by Genes Alone: how Culture Transformed Human Evolution*. p. 194.

perspective of sociology and legal theory, but also from a broader point of view, that includes it in the wider scope of human evolution.

Some themes come naturally into focus from this perspective. First, constitutionalism can be understood as a sociocultural structure that has evolved as a result of cooperation problems that emerged in Western societies during the Modern Era. There is a selectionist history behind constitutional emergence if we consider that constitutions perform a function in dealing with cooperation problems, and that they were selected in a specific environment precisely as a result of performing this function. This hypothesis, however, can only be formulated by assuming an evolutionary background as a premise.

Acknowledging this implies that constitutionalism is part of a long history not only pertaining to legal institutions, but also to the emergence of cooperation in the human species and how it has been structured in the course of human evolution. As will be discussed later on, many problems present in the history of constitutionalism are also issues that appear in other contexts, such as the very evolution of altruism in nature.

Second, adopting a consilient approach to constitutional theory entails that the proper understanding of constitutionalism cannot be strictly limited to the understanding of how the constitutional level works *per se*. Its foundations, although they can be also studied as autonomous processes, are grounded on lower levels. Here, psychological processes are of special relevance, since many deontological operations necessary for the legitimization and stabilization of constitutions are grounded on how the human mind works. There are many evidences that our minds are equipped with innate dispositions that are necessary to moral and normative reasoning, and, as such, much can be learned about constitutional dynamics if we focus on the interplay between constitutions and human psychology.

In sum, the consilient approach thus far advocated entails that evolutionary theory can offer new insights on constitutionalism both on synchronic and diachronic frameworks. Synchronically, it allows us to see how constitutions work in harmony with the dispositions of our innate psychology, enabling the formulation of hypotheses about constitutional legitimacy and their stability. This perspective does not leave the important contributions of sociology and legal philosophy aside, but, on the contrary, brings a new player into the scene – the tenets of our evolved psychology. Diachronically, this framework allows us to see legal theory, and, more specifically, constitutionalism, as a structure with its own evolutionary history.



### 1.2.3. Shedding New Lights on Old Problems

The British legal philosopher Herbert Lionel Adolphus Hart, in his *The Concept of Law*, distinguished between two important and complementary ways to look at law. First, we can try to understand law from the point of view of a member of a community that accepts and uses particular legal rules in order to cope with their internal affairs, using those rules as normative standards to guide conduct and judge the behaviors of others. This is what Hart calls the *internal* point of view, which is also the perspective adopted by most legal theorists, who try to understand law as a legal practitioner working inside the premises of a particular legal system.<sup>136</sup>

Most problems of the legal doctrine have using this perspective. For example, when a legal theorist wants to examine whether a particular claim or legal rule is valid, he must verify whether it is coherent with the set of other statutes, the judicial precedents and moral/legal principles accepted in that system. This is how a judge, a lawyer or a law-abiding citizen behave as members of a legal community.

However, Hart also conceived of an *external* way to look at legal problems. This is the perspective taken by someone who, while not accepting the rules of a particular legal system, tries to understand it. The external observer can assert that the group members accept particular rules and even predict their behavior and the consequences of not acting in the desired way. However, they would not be able to fully understand the normative reasons underlying that behavior. His example concerns the external point of view regarding the understanding of traffic signal rules is well known. An external observer could watch the events surrounding a traffic signal in a busy street for some time, and then predict correctly that traffic will stop when the light turns red. But he would miss an important normative dimension. The drivers do not stop automatically when the traffic light is red just because they see that it is how other drivers behave, but because this behavior is a normative obligation supported by "the way in which the group regards its own behaviour."<sup>137</sup> The internal point of view can be only appreciated by those who are members of a particular normative community.

In Hart's appreciation, the external point of view can only observe behavioral regularities, but not understand the social meaning of normativity. As he says, from the internal point of view "the violation of a rule is not

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136 See Hart, H. L. (1994). *The Concept of Law*. Oxford: Clarendon Press. p. 89.

137 In Hart, H. L. (1994). *The Concept of Law*. pp. 89-90.

merely a basis for the prediction that a hostile reaction will follow but a reason for hostility."<sup>138</sup> The external point of view could only see that law is sanction-threatening and, as such, could foresee the application of a sanction; but, from the internal point of view, law is not only a threat to apply sanctions, but also obligation-imposing. And the dimension of the obligation is precisely not seen from the external viewpoint. Hart's ultimate rejection of the external point of view can be understood as a refusal to agree with legal realists' emphasis on predictability, which might be desirable, but focusing only on it would miss the point of what having an obligation is, from a normative viewpoint.<sup>139</sup> In order to understand what a legal obligation is, it is needed to decipher the legal rules on which it is based on, and the chain of rules that link them to their ultimate foundations.

Nonetheless, legal realism is not the only possible external approach to understand law. The evolutionary point of view can also be held as an external position; but, if assumed from the beginning as one position among others – including internal frames of reference –, the criticism pointed out by Hart can be avoided.

As a matter of fact, adopting the evolutionary stance comes with the advantage of shedding light on old jurisprudential problems which could not be satisfactorily tackled via an internal frame of reference. Take the problem of constitutional validity, for instance.

The internal point of view is a standard reference for legal practitioners because, for most of the time, they are concerned with issues of legal validity. In their daily activity, they discuss whether a claim made by a particular citizen is founded on legal norms, or if specific statutes find their foun-

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138 In Hart, H. L. (1994). *The Concept of Law*. p. 90.

139 See, for instance, this passage from O. W. Holmes: "When we study law we are not studying a mystery but a well-known profession. We are studying what we shall want in order to appear before judges, or to advise people in such a way as to keep them out of court. The reason why it is a profession, why people will pay lawyers to argue for them or to advise them, is that in societies like ours the command of the public force is intrusted to the judges in certain cases, and the whole power of the state will be put forth, if necessary, to carry out their judgments and decrees. People want to know under what circumstances and how far they will run the risk of coming against what is so much stronger than themselves, and hence it becomes a business to find out when this danger is to be feared. The object of our study, then, is prediction, the prediction of the incidence of the public force through the instrumentality of the courts." In Holmes Jr, O. W. (1998). *The Path of the Law*. *Boston University Law Review*, 78, 699-715.

dations on the constitution. Usually, the internal point of view is enough to deal with most issues raised by validity questions because legal practitioners stop raising questions about validity when they get to the constitution.

When legal scholars try to ask questions about the validity of the constitution itself, they find themselves in a paradoxical dead end. On the one hand, a natural law theorist might say that the legitimacy of the constitution rests on ultimate moral values external to law. But this is not a satisfactory way to argue for the validity of a constitution because, in complex societies, no one can agree on ultimate values upon which we establish the legitimacy of a legal system.<sup>140</sup> On the other hand, positivists have struggled to find solutions that are, like the Schrödinger's cat, inside and outside the system at the same time. Hart, confined to the internal point of view, has to make up rules of recognition, assuming the acceptance of the system of legal rules as a rule for itself.<sup>141</sup> Hans Kelsen, another positivist, assumes a basic norm as a logical foundation to the rest of the legal system.<sup>142</sup>

However, these are only arbitrary solutions to the paradox, because they assign an ultimate validity to another rule (either the basic norm or the rule of recognition) and stop asking questions about the problem. This is to beg the question, not to answer it. Asking *why a constitution is respected* is one of the foundational questions of constitutional law, but legal theory has not been able to provide satisfactory answers to it because it has stuck itself to the internal point of view, which limits itself to see the problem from the perspective of a member of the legal community.

When seen from the eyes of an external observer, the paradox is at least acknowledged, as does the sociologist Niklas Luhmann. Constitutions do not owe their foundations to external moral values, but are produced as a result of a self-description of the political system in the differentiation process between law and politics.<sup>143</sup> As a result, a constitution is a structural coupling between these two systems, enabling the translation of the inter-

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140 See Rawls, J. (2005). *Political Liberalism*; Waldron, J. (2004). *Law and Disagreement*. Oxford: Oxford University Press.

141 See Hart, H. L. (1994). *The Concept of Law*. pp. 95-96.

142 See Kelsen, H. (1978). *Pure Theory of Law* (Knidght, Trans. 2nd ed.). Berkeley: University of California Press; Kelsen, H. (1959). On the Basic Norm. *California Law Review*, 47, 107-110; Raz, J. (1974). Kelsen's Theory of the Basic Norm. *The American Journal of Jurisprudence*, 19, 94.

143 See King, M. and Thornhill, C. (2006). *Niklas Luhmann's Theory of Politics and Law*. New York: Palgrave Macmillan. pp. 173-174.

nal operations of one system into the terms of the other.<sup>144</sup> However, constitutions are not constrained by a moral natural law, nor owe their validity to a superior basic norm or rule of recognition. Constitutions provide their own self-referential validity. This is a paradox that can only be seen from the external point of view adopted by Luhmann. From the standpoint of law, the Constitution is a supreme statute that must be observed by other statutes (constitutional supremacy), public officials and citizens. Quite differently, the positivization of Constitution means that it performs an instrumental role for the political system, being a tool for political change (instrumental politics) and legitimization of the status quo (symbolic politics).<sup>145</sup>

The sociological perspective is one among many external possibilities of approaching this problem. Another external alternative would be to adopt an evolutionary point of view. This is part of the subject of the present text, but, at the moment, I can only outline a possible line of answer. The starting point would be to consider that constitutions are, from the outset, institutions with a long history that have been retained in the course of modern democracies because they performed some specific functions.<sup>146</sup> The evolutionist would have to define what this function is and tell a selectionist history that could account for the selection of this kind of social structure instead of others.

Concerning the problem of constitutional validity, an evolutionist could see it from two different angles. First, they could consider it to be a false issue. Constitutions exist and they perform their function, which is the reason why they have been selected – and that is all there is to say about it. What remains to be understood is how they have become what they are today. But a second and more interesting point could also be made. The problem of constitutional validity is raised as an internal problem because of some features that all human societies display, and they display these attributes due to an inner evolutionary logic hardwired in the human mind. Human minds were selected for life in large groups and the innate psychological dispositions needed for that achievement are grounded on the assumption of symbolic integration.

This is a far more interesting history to be told because it unifies both external and internal points of view in a unique way. *The external kind of*

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144 See Luhmann, N. (2004). *Law as a Social System*. p. 404.

145 In Luhmann, N. (2004). *Law as a Social System*. p. 310.

146 As a matter of fact, Luhmann's point could be slightly similar. This is not a surprise, since his functionalist thought is also indebted to an evolutionary view.

explanation provided by evolutionary theory clarifies why the very internal point of view exists. Legal scholars seek to find an ultimate ground for legal rules because this is a way to think about the moral world that has been hard-wired in our minds in the course of human evolution. This is not a metaphysical claim, but an anthropological one: every human society unified under a blueprint that embodies a single shared conception of the normative world.<sup>147</sup> When legal scholars create intricate fictions of "basic norms" or "rules of recognition," they might be only echoing hardwired intuitions that have been inside the minds of our *Homo sapiens* ancestors for the last 200,000 years. The Luhmannian paradox can be diluted in a Darwinian illusion caused by the way our mind is used to think about moral issues.

To back this claim, however, we need to take into account more than an abstract evolutionary approach. We need to grasp the most recent researches that have been made in fields as diverse as sociology, anthropology, psychology, neurology, ethology and biology – not to say, legal theory and history itself. To think in a Darwinian way is to organize the gathered evidence in order to understand them in a consilient set.

This process will also shed light on other old jurisprudential problems. The most obvious is the issue of natural law and its relationship with positive law, a debate that has almost been abandoned in the last decades. In an evolutionary perspective, it is possible to reformulate the natural law doctrine in a completely new fashion, a path that has already been taken by some scholars like Edwin Scott Fruehwald<sup>148</sup> and Larry Arnhart<sup>149</sup>. Unfortunately, however, their view is still simplistic, grounded on a naïve attempt to found rights strictly on a biological human nature, with no consideration for sociological processes.

There is another route to this path, which also needs to be interdisciplinary. The evolutionary perspective, as Fruehwald and Arnhart argue, shows that rights are grounded on human nature, but they are also grounded on sociocultural evolution. In order to demystify natural law, we need to take both processes into account simultaneously, a task that can be accomplished with evolutionary lenses.

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147 See Boehm, C. (1999). *Hierarchy in the Forest*. Cambridge (MA): Harvard University Press. p. 67.

148 See Fruehwald, E. S. (2008). Reciprocal Altruism as the Basis for Contract. *University of Louisville Law Review*, 47, 489-530; Fruehwald, E. S. (2009). A Biological Basis of Rights. *Southern California Interdisciplinary Law Journal*, 19, 195-236.

149 See Arnhart, L. (2003). Darwinian Conservatism as the New Natural Law. *The Good Society*, 12(3), 14-19.

#### 1.2.4. Constitutionalism as a Cooperation-Enhancing Evolved Structure

A consilient view on law and normative institutions implies accepting that these societal structures solve problems that might have been continuous to earlier issues of evolutionary history. And this is indeed the case of constitutionalism. The evolution of complex structures, from biological organisms to the sociocultural human world, demands sophisticated methods to cope with problems of organization between units that give rise to emergent structures that are necessary to support increasing complexity.

A great part of this problem is related to the issue of cooperation (or altruism) as understood in biology. In the current and most popular sense of the term, the words 'cooperation' and 'altruism' refer to a situation where one individual helps the other with the intention of doing so. In biology, this is not necessarily the case. Cooperation, in this more technical sense, occurs when one individual acts in such a way that benefits another individual (or individuals) while incurring in a loss for oneself. There are millions of examples in nature, including situations where our common sense would acknowledge the occurrence of cooperation and altruism.

Let us see a few examples. Why do the cells of our body not reproduce themselves infinitely, but respect the needs of the organism? For sure, disorderly cellular reproduction is a possibility, as it occurs in the case of cancer; but it is an undesirable result of a process that has gone *wrong*, rather than the expected behavior of our cells.<sup>150</sup> Cells – obviously in a non-conscious, but genetically programmed way – limit their reproduction, decreasing the chances of expanding the proportion of their own genes in the future, but increasing the fitness of the organism as a whole. A similar process takes place in beehives. A worker cooperates with the hive by limiting its own reproduction and, like the cells, decreases the odds that its genes will gain proportional representation in the genetic pool of the next generation. Workers also cooperate with the beehive in other ways besides limiting their own reproduction. A widely known example is the fact that bees are selfless warriors in the defense of the beehive. In a *kamikaze* style, when they attack an offender, they lose their sting and die.

The reproductive limitation of both cells and bees is an example of how cooperation can produce the emergence of higher levels of complexity. Without this behavioral limitation, neither organs nor hives could ever ex-

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150 See Axelrod, R. M., Axelrod, D. E. and Pienta, K. J. (2006). Evolution of Cooperation among Tumor Cells. *Proceedings of the National Academy of Sciences of the United States of America*, 103(36), 13474-13479.

ist. The differences between individual bees and cells would be so large that a structure could hardly be built upon them. The conflict between individual cells and bees would lead to the destruction of any collective-like endeavor from the start, because individuals would be more concerned with their own fitness rather than promoting the well-being of the whole aggregate.

This is the *free rider* problem: how can cooperation emerge if individuals are foremost concerned with their own interest and wellbeing? This problem can be solved, and has been solved many times both in nature and by human societies, through the development of many mechanisms. Cells and bees do not fight for their individual interests because they share a huge percentage of their genes, thereby increasing the potential for cooperation and for suppressing free riders (the intrinsic logic of this reasoning will be explained later). Chimpanzees and vampire bats have discovered another way to cope with this problem: they punish those who fail to cooperate. A chimpanzee helps another chimpanzee today expecting that the recipient of the act will return the favor later; if it does not act as expected, some sort of punishment will follow.

These ways to solve free-riding problems are based on structural mechanisms that use the interaction logic of the units in order to build larger and more complex cooperative units. Cooperation, in this sense, is not to be expected as a natural and unproblematic evolutionary result because, in order to emerge, it has to solve many free riding problems that arise not only between conscious beings, but also in the evolution of many other structures, such as eukaryote cells, mutualism, and functionally differentiated organs. In all these cases, evolution has provided exquisite solutions to problems relating the coordination of lower level units in order to provide stability for higher level organization.

My claim is that constitutionalism is a structure that has evolved because it sustains cooperation in complex societies. In order to understand how constitutions perform this function, we need to comprehend how cooperation has evolved and how cooperation-enhancing structures proceed in order to arrange and stabilize the combined effort of the inner units of the system in order to fortify the solidity of complex societies.

As a matter of fact, this is the main claim of be developed. Constitutionalism is a sociocultural structure that organizes lower level units in order to sustain cooperation in complex societies. Constitutionalism, in this sense, is just another emerging structure that evolved because it organizes cooperation and sustains further complexity. In order to understand the

role of constitutionalism, we need to comprehend fully the logic that has sustained cooperation in the course of evolution.

All these reasons provide a good case for adopting an evolutionary jurisprudence on constitutional issues. Even if a more skeptic reader might claim that I have not successfully demonstrated that we *need* an evolutionary approach to constitutionalism, I hope the reasons I offered can at least back the claim that an evolutionary perspective might be useful to see some points that other theoretical frameworks do not allow us to see. In the next chapter, I will outline more precisely what I mean by an evolutionary perspective, clarifying some concepts and structuring the background assumptions that will be needed to build my argument about the emergence of constitutionalism as an adaptation.



## 2. From Hierarchical Primates to an Egalitarian Species: Understanding the Origins of Human Cooperation

How have we humans become capable of making normative assessments? Evaluating moral situations is so common to us that we hardly consider how rare we are in nature. For sure, chimpanzees, gorillas and bonobos are all capable of many behaviors to which, in principle, we could assign moral qualities. However, among the millions of species on Earth, *Homo sapiens* is the only one whose social life is fully organized through moral and legal systems.

How has this happened? How has evolution produced a species capable of acting based on moral principles, and, more than that, of organizing its societies based on such a complex social system as law? When we look back at 1,000,000 years ago, nothing like that existed among our *Homo erectus* ancestors. By 200,000 years ago, when the first *Homo sapiens* walked on Earth, only rudiments of cultural life and moral codes could have been found – and, 200,000 years *later*, we have become capable of such a revolution in the course of natural evolution. This is, for sure, a story worth telling – or, at least, worth speculating about.

In this chapter, I will explore some recent theoretical explanations concerning the origins of normative behavior within our species. The departing point is quite simple: how can evolution produce cooperation<sup>151</sup> at all? This is the subject of the chapter's first section. Then, I will investigate the

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151 The term 'cooperation' is to be understood in the same sense as biologists usually refer to 'altruism'. Both terms, as used in biology and game theory, allude to situations in which at least two agents engage in forms of mutually beneficial joint action although, in the short run, each of them could be better off by being selfish. The classic example is the Prisoner's Dilemma. For a deep discussion on this subject, see Sober, E. and Wilson, D. S. (1998). *Unto Others*. pp. 17-54. It is to be noticed, as well, that cooperation is to be distinguished from simple 'coordination'. In coordination, all agents act jointly because *both* have a short-term interest in doing so, insofar as doing the same thing results in higher pay-off for all of them. In cooperation, there is a short-term cost for at least one of the involved agents. On this subject, see Richerson, P. J., Boyd, R. and Henrich, J. Cultural Evolution of Human Cooperation. In Hammerstein (Ed.), *Genetic and Cultural Evolution of Cooperation* (pp. 357-388). Cambridge: The MIT Press. p. 358.

evolutionary basis of human pro-social behavior and the foundations of our ability to think based on social norms.

### 2.1. Gene-centered Mechanisms of Cooperation

According to a well-known image of biological evolution, nature is "red in tooth and claw."<sup>152</sup> "Struggle for survival" and "only the strongest ones survive" are also associated with biological evolution, and suggest violence and competition as the normal condition of natural beings. Although Charles Darwin stressed competition and the struggle for existence as primary driving forces of evolution, the British naturalist also highlighted that cooperative behavior might evolve if it confers an evolutionary advantage to its bearer. In a quite distinct and prescient passage of *The Descent of Man*, Darwin posits that virtues such as courage, altruism and loyalty could evolve in human societies because groups whose members had these qualities would have a competitive advantage over groups consisting of selfish people.<sup>153</sup>

Darwin thought that group-beneficial individual traits could be subjected to natural selection. This theory, which has been referred to as group-

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152 Although the expression "tooth and claw" was known in the first half of the 19th century, it is usually attributed to Alfred Lord Tennyson's *In Memoriam A.H.H.* The quotation, extracted from Canto XVI, stresses the violence and savagery of human nature in this way: "Who trusted God was love indeed/ And love Creation's final law/ Tho' Nature, red in tooth and claw/ With ravine, shriek'd against his creed."

153 In Darwin's own words: "When two tribes of primeval man, living in the same country, came into competition, if (other circumstances being equal) the one tribe included a great number of courageous, sympathetic and faithful members, who were always ready to warn each other of danger, to aid and defend each other, this tribe would succeed better and conquer the other. Let it be borne in mind how all important in the never-ceasing wars of savages, fidelity and courage must be. The advantage which disciplined soldiers have over undisciplined hordes follows chiefly from the confidence which each man feels in his comrades. Obedience, as Mr. Bagehot has well shown, is of the highest value, for any form of government is better than none. Selfish and contentious people will not cohere, and without coherence nothing can be effected. A tribe rich in the above qualities would spread and be victorious over other tribes: but in the course of time it would, judging from all past history, be in its turn overcome by some other tribe still more highly endowed. Thus the social and moral qualities would tend slowly to advance and be diffused throughout the world." In Darwin, C. (1981). *The Descent of Man and Selection in Relation to Sex*.

selection theory, had not had a real theoretical basis until the 1960s. In the 1930s, Ronald Fisher, J. B. Haldane and Sewall Wright attempted to elaborate a group selection theory. Fisher doubted that group selection could have an important evolutionary role because the extinction rate of groups is too slow when compared to that of individuals, which would result in the predominance of individual selection over group selection<sup>154</sup>. Accordingly, Haldane did not credit group selection as a relevant force in evolution, although he developed a theoretical framework that established some necessary conditions in which group selection *could* be an important evolutionary force. Only Wright thought that group selection might be an important force in its own terms.<sup>155</sup> Although there were good reasons to discard the idea that natural selection favored group-benefitting behaviors, group-selection explanations were quite popular in the first half of the 20th century. Konrad Lorenz, for instance, explained the submissive behavior of deer males when in dispute against other males as a feature that has been selected for the sake of the whole species.<sup>156</sup>

In 1962, the Scottish biologist Wynne-Edwards provided the first sound theoretical explanation founded on group selection that was based on the idea that many social behaviors displayed by animals are adaptations that regulate population size in order to prevent overpopulation.<sup>157</sup> After studying the ecological behavior of *Lagopus lagopus scoticus* (the red grouse) for some time, he discovered that, each year, part of the population occupies the best lands and reproduces, while other part is relegated to a marginal area where they are more subject to death due to predation. According to the biologist, this behavior is an adaptation that evolved because it dimin-

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154 See Okasha, S. (2006). *Evolution and the Levels of Selection* (Kindle ed.). Oxford: Oxford University Press. pp. 2290-2296.

155 See Okasha, S. (2006). *Evolution and the Levels of Selection*. p. 175.

156 See Okasha, S. (2006). *Evolution and the Levels of Selection*. pp. 2296-2301.

157 As Wilson & Sober state: "Wynne-Edwards interpreted this social system as an adaptation that evolved to prevent the grouse population from overexploiting its food supply. In addition, he thought that most species in nature face the same problem. In *Animal Dispersion in Relation to Social Behavior*, Wynne-Edwards (1962) interpreted a vast array of social behaviors as adaptations for regulating population size. For example, birds sing in the morning and zooplankton migrate to surface waters at night to assess their density and regulate their reproduction accordingly. Wynne-Edwards's writing conveyed the electric quality of someone who believed he had discovered a major principle of evolution." See Sober, E. and Wilson, D. S. (1998). *Unto Others*. p. 36.

ished the risk of overpopulation and the resulting scarcity of food reserves. The population would diminish its birth rate for the good of the species.<sup>158</sup>

Nevertheless, his explanation of altruistic behavior through group selection was harshly criticized in the 1960s, largely because of the research developed by George C. Williams, William Hamilton, Robert Trivers, John Maynard Smith, David Lack and findings from game theory,<sup>159</sup> which could explain cooperation and altruism solely by resorting to individual selection. This development led group selection to be discredited, and it remained restricted to certain circles of biology researchers.

The first kind of criticism against group selection was inspired on the research by George C. Williams, who proposed a principle of parsimony, according to which group selection should not be invoked unless it were strictly necessary. Later, this methodological criticism gained support from research by Hamilton, Trivers, John Maynard Smith and from some theoretical developments in game theory, which showed that the behavior described by Wynne-Edwards could be explained by other mechanisms.

George C. Williams also criticized Wynne-Edwards on the grounds that his thesis was based on a conceptual mistake, confusing *adaptations* and *traits that only fortuitously benefitted the group*. Group adaptations would be traits that really evolved through processes of group-selection because they conferred specific advantages for the group, while fortuitous benefits could evolve through other means (through drift, for instance).<sup>160</sup>

However, these theorists did more than only undermine the credibility of group selection theories. They also developed a convincing alternative, based on the premise that natural selection acts upon genes, not groups. George C. Williams sustained that many complex animal behaviors could be explained if we took into account the genetic level of reality. A gene is not selected because it is good for the individual or for the group, but because it produces individuals capable of maximizing the statistical representation of that *gene* in future generations.<sup>161</sup> When trying to explain a useful trait, one must adopt the gene's eye view and always seek the answer to the following question: how will these genes benefit from this feature?

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158 See Sober, E. and Wilson, D. S. (1998). *Unto Others*. p. 36.

159 See generally Axelrod, R. M. (2006). *The Evolution of Cooperation*. New York: Basic Books.

160 See Okasha, S. (2006). *Evolution and the Levels of Selection*. pp. 2306-2311.

161 See Laland, K. N. and Brown, G. R. (2011). *Sense and Nonsense*. New York: Oxford University Press. p. 74.

Many kinds of problems could be addressed through this approach. David Lack, for example, addressed the explanation proposed by Wynne-Edwards of the red grouse population control, suggesting that natural selection would favor the evolution of individuals able to regulate the size of its nest according to the environmental situation. Common-sense would suggest that the fittest individuals would be those able to produce the largest offspring. But producing a huge amount of offspring might not be efficient, because it costs more to take care of them than to take care of less descendants. In this sense, the more offspring one individual produces, the less efficiently it can take care of them. Lack perceived this and proposed that natural selection would favor the evolution of individuals able to generate the optimal amount of descendants for the surrounding environment: an individual that produced more than this optimal amount would probably end up with less living descendants than an individual that followed the most favorable pattern.<sup>162</sup>

This gene-centered approach became very popular after the publication of Richard Dawkins' *The Selfish Gene* in 1976.<sup>163</sup> According to this view, group selection is unlikely to be a major evolutionary factor. In a group composed both of altruists and free riders, the advantages of being selfish would be clear because they would earn the benefits of cooperation without having to pay its price.<sup>164</sup> As a result, the proportion of free riders would increase over time, and the altruists would become scarcer. In this sense, Darwin's theory of human cooperation would not work because selection among groups is weaker than selection within groups and, as a consequence, natural selection within the group would select free riders over altruists.<sup>165</sup>

However, how could the gene-centered view explain socially cooperative behavior, if selfish individuals have an intrinsic advantage over altruists?

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162 Dawkins concludes Lacks' reasoning: "According to Lack, therefore, individuals regulate their clutch size for reasons that are anything but altruistic. They are not practising birth-control in order to avoid over-exploiting the group's resources. They are practising birth-control in order to maximize the number of surviving children they actually have, an aim which is the very opposite of that which we normally associate with birth-control." In Dawkins, R. (2006). *The Selfish Gene*. Oxford: Oxford University Press. p. 116.

163 See Dawkins, R. (2006). *The Selfish Gene*.

164 See Williams, G. C. (1996). *Adaptation and Natural Selection*. Princeton: Princeton University Press.

165 See Domondon, A. T. (2013). A history of altruism focusing on Darwin, Allee and E.O. Wilson. *Endeavour*, 37(2), 94-103; Leigh, E. G. (2010). The Group Selection Controversy. *J. Evol. Biol.*, 23(1), 6-19.

2.1.1. Kin Selection

In 1964, W. D. Hamilton proposed the kin selection theory, according to which an individual's genes can spread faster if their carriers help genetically-related individuals, given that a great proportion of their own genes would also spread through the population.<sup>166</sup> To this end, altruistic behaviors could arise if the considered individuals had a high proportion of shared genes. His basic idea is that we should consider the costs and benefits of altruistic action. An individual that helps another (donor) pays a cost (c), which can express a reduction of the probability that that individual will reproduce itself. However, their act causes a benefit (b) for the recipient of the altruist act. If those are the only variables at stake, it would not make any *evolutionary* sense for one individual to help another because they would pay the cost, reducing their fitness (their ability to produce offspring) while benefiting someone else to increase the recipient's fitness.

However, Hamilton noticed that we should solve the problem of altruism if we consider a third variable: the probability that both individuals share a percentage of the same genes (r, from *relatedness*). If both the donor of the altruist act and the recipient are genetically close, it makes sense that one helps the other because the result of the altruistic act raises the odds that the genes of the donor, which are also shared with the recipient, are transmitted to the next generation. According to Hamilton, the selection of an altruistic behavior is probable when the condition  $c < br$  is met. In other words, if the cost of the altruistic act is inferior to the multiplication of the benefit of that act and to the relatedness between the donor and the recipient.<sup>167</sup>

To incorporate kin selection into evolutionary theory, Hamilton proposed the concept of 'inclusive fitness': the genetic success of a particular animal is not only connected to its ability to reproduce and spread its own genes (individual fitness), but also to spread its genes through the reproduction of its close kin. Furthermore, individuals who share a large amount of genes with their relatives are more prone to cooperate with them than individuals who share a lower percentage of their genes. Kin selection theory provided an explanation for self-sacrificing behavior because

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166 See Hamilton, W. D. (1964). The Genetical Evolution of Social Behaviour. I. *J. Theoret. Biol.*, 7, 1-16.

167 See Laland, K. N. and Brown, G. R. (2011). Sense and Nonsense. p. 76; Dawkins, R. (2006). The Selfish Gene. pp. 94-108; Sober, E. and Wilson, D. S. (1998). *Unto Others*. pp. 58-61.

one could sacrifice oneself but improve the odds that their own genes would spread through the reproductive successes of close relatives.<sup>168</sup>

It is important to notice an important question concerning the terminology used here. Hamilton does not refer to the term "altruism" in the same sense of a moral philosopher or a fellow citizen. In our daily lives, when we refer to an altruistic act, we are roughly talking about an act practiced by someone who was genuinely concerned with the well-being of the recipient of their act. A stranger helps an old lady to cross a street because they want her to arrive at her destiny. Here, one can wonder about the psychological state of the donor of the act — they *helped* her *because* they *thought* X, where X is a state of mind concerning the well-being of the recipient. This kind of analysis, however, is *very different* from Hamilton's proposal. He is not concerned with the psychological state of the donor, but only with the behavioral fact that they act in such a way that reduces their fitness (c) and raises the fitness of the recipient of their act (b).

Wilson & Sober suggest that we differentiate two categories of altruism: *psychological altruism* and *evolutionary altruism*. This dichotomy is based on Ernst Mayr's distinction between proximate and ultimate causes.<sup>169</sup> Proximate causes are related to immediate and mechanical influences on a trait and behavioral dispositions related to the functioning of the trait. Ultimate causes are historical *per se*, often concerning evolutionary explanations referring to natural selection operations. Although this distinction has been recently subjected to some criticism,<sup>170</sup> it is useful to the purpose of explaining the differences between psychological altruism and evolutionary altruism. The former is related to proximate causes. When someone is talking about psychological altruism, they are referring to the psychological states that cause the displayed altruistic behavior. Evolutionary altruism refers to the natural selection history that explains the logic underneath the selection of that behavior.

Of course, psychological and evolutionary altruism might be related at least in the weak sense that psychological altruism relies on mental structures that evolved within a particular evolutionary history. But the distinction is useful because it highlights the fact that we do not need to expect

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168 See Dawson, D. (1999). Evolutionary Theory and Group Selection: The Question of Warfare. *History and Theory*, 38(4), 79-100.

169 See Mayr, E. (1961). Cause and Effect in Biology. *Science, New Series*, 134(3489), 1501-1506.

170 See Laland, K. N., Sterelny, K., Odling-Smee, J., Hoppitt, W. and Uller, T. (2011). Cause and Effect in Biology Revisited: Is Mayr's Proximate-Ultimate Dichotomy Still Useful? *Science*, 334(6062), 1512-1516.

an extraordinarily sophisticated mind in order to expect altruistic acts. As a matter of fact, psychological altruism is not even needed for evolutionary altruism to work. If the condition  $c < br$  is met, and given enough evolutionary time, it is possible that even beings equipped with quite modest minds be<sup>171</sup> *evolutionary altruists* without being *psychological altruists*.

Kin selection can explain altruistic behavior without relying on psychological altruism. It explains the natural selection of some dispositional traits that cause altruistic behavior without the need of inferring mental states. For instance, it offers at least a partial explanation of why cooperation among the cells of a single organism is expected to arise, since each cell is an almost-perfect genetic clone of every other cell of the organism.<sup>172</sup> But the textbook illustration of kin selection is offered by the degree of cooperation that evolved among social insects, as a result of the high degree of genetic-relatedness each individual insect display with the rest of the fellow members of its colony.

This is particularly evident in the Hymenoptera order, which includes honeybees, ants and wasps. A worker honeybee can sacrifice itself in order to protect the hive even if it cannot reproduce itself because it shares seventy-five percent of its genes with its sisters and fifty percent of the queen's genes. It is an altruistic act because the worker pays the cost (c) of not reproducing and by sacrificing itself on behalf of the hive (b). A honeybee queen only shares half of its own genes with its worker daughters; thus, the genetic success of worker honeybees is best achieved when it protects its own sisters, not by having its own sons and daughters. But this altruistic behavior pays off its costs because of the high degree of relatedness (r) between the worker and its siblings, in such a way that the structure of a beehive obeys Hamilton's rule. This explains why workers are sterile and guard the hive.<sup>173</sup>

Kin selection is the ultimate cause of altruistic behavior not only among social insects, but in many other animal species. Its effects can be observed in *parental care*, the special devotion parents dedicate to their offspring un-

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171 I adopt a broad concept of mind encompassing all kinds of intentional systems, whose behavior can be explained through the use of what Daniel Dennett calls the intentional stance. See Dennett, D. C. (1996b). *Kinds of Minds*. New York: BasicBooks. p. 34.

172 See Michod, R. E. and Roze, D. (2001). Cooperation and Conflict in the Evolution of Multicellularity. *Heredity*, 86(Pt 1), 1-7; Smith, J. M. and Szathmáry, E. (1997). *The Major Transitions in Evolution*. Oxford: Oxford University Press. p. 283.

173 See Dawkins, R. (2006). *The Selfish Gene*.



til they are able to fend for themselves. Care-taking among siblings and close kin is also a common feature, observed not only amid humans and primates, but also in other mammals<sup>174</sup> and even wild turkeys,<sup>175</sup> among other examples.

Although kin selection might offer an interesting theoretical framework to offer probable evolutionary explanations for many features of animal and human societies, such as parental investment and nepotism,<sup>176</sup> it cannot explain how cooperation could emerge among unrelated individuals — like ourselves. Humans help one another even if they are not siblings or close kin. We give money to charity in order to help strangers and most of us pay our taxes even if the tax collector is not knocking at our door. How is this possible? After all, these are examples of costly actions without any predictable benefit in terms of fitness.

### 2.1.2. Direct Reciprocity

According to Martin Nowak,<sup>177</sup> there are other mechanisms that might explain altruism toward genetically unrelated individuals. The first of those is direct reciprocity.<sup>178</sup> In a classical paper published in 1971, Robert Trivers suggested that when non-related individuals interact over an indefinite amount of time, altruistic behavior might be selected when there is a high probability that the recipient of the benefits will return the favor to the donor in the future.<sup>179</sup> The logic of this mechanism has been explained

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174 One good experiment that shows the disposition to help kin is the research conducted by Paul Sherman, who studied alarm calls in ground squirrels. These squirrels warn other individuals about the presence of predators. However, by doing this, the caller draws attention to itself, increasing the odds that the predator will notice and pursue them. Sherman noticed that the calls were more frequent when there were relatives closer to the caller. See Milius, S. (1998). The Science of EEEEEK! *Science News*, 154(11), 174-175.

175 See Krakauer, A. H. (2005). Kin Selection and Cooperative Courtship in Wild Turkeys. *Nature*, 434(7029), 69-72.

176 See Masters, R. D. (1982). Is Sociobiology Reactionary? The Political Implications of Inclusive-Fitness Theory. *The Quarterly Review of Biology*, 57(3), 275-292.

177 See Nowak, M. A. (2006). Five Rules for the Evolution of Cooperation. *Science*, 314(5), 1560; Nowak, M. A. and Highfield, R. (2011). *SuperCooperators* (Kindle ed.). New York: Free Press. pp. 494-2018.

178 See Trivers, R. L. (1971). The Evolution of Reciprocal Altruism. *The Quarterly Review of Biology*, 46(1), 35-57.

179 See Trivers, R. L. (1971). The Evolution of Reciprocal Altruism.

by game theory, which studies decision-making in situations involving conflicts of interest between rational agents. A game is defined as any strategic interaction between two or more rational players, who act according to strategies that result in a specific *payoff*, measured in terms of *utility*.<sup>180</sup> Utility refers to the immediate sensation of preference experienced by a player. It is measured in relative terms, compared to the alternative results potentially obtained through the adoption of the other strategies. In this sense, utility is a transitive concept. If the player prefers A over B, and B over C, then they also prefer A over C. In strictly mathematical terms,  $u(A) > u(B) > u(C)$ .

Standard game theory also assumes that the players are rational in the sense that they act according to the strategy that leads to the best possible payoff, considering the possible outcomes from the other strategies at their disposal and the probable strategies that their opponents might also choose, considering *their* respective payoffs. In this sense, the players are rational not only because they choose strategies that lead to the best results for themselves, but also because they take into account that the other players are rational as well.<sup>181</sup>

In an *equilibrium* situation, the feasible results of the game are compatible with the premise of rationality. In 2-player zero sum games, where the sum of the payoffs obtained by both players equals zero, there is *always* a pair of strategies in which the strategy chosen by one player is both the best choice and the best option at the disposal of the other player. John Von Neumann, the founder of game theory, proposed the *minimax* equilibrium solution, which is achieved when each player adopts the strategy which results in the best *minimum* result regardless of the strategy adopted by the other player. If one of the players adopts a minimax strategy, the game will remain in equilibrium because the other player can do no better

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180 See Leyton-Brown, K. and Shoham, Y. (2008). *Essentials of Game Theory*. San Rafael: Morgan & Claypool. pp. 30-31.

181 As Leyton-Brown and Shoham state: "A strategy is rationalizable if a perfectly rational player could justifiably play it against one or more perfectly rational opponents. Informally, a strategy profile for player *i* is rationalizable if it is a best response to some beliefs that *i* could have about the strategies that the other players will take. The wrinkle, however, is that *i* cannot have arbitrary beliefs about the other players' actions—his beliefs must take into account his knowledge of their rationality, which incorporates their knowledge of his rationality, their knowledge of his knowledge of their rationality, and so on in an infinite regress. A rationalizable strategy profile is a strategy profile that consists only of rationalizable strategies." In Leyton-Brown, K. and Shoham, Y. (2008). *Essentials of Game Theory*. p. 88.

than to also choose their minimax strategy. But the most influential solution concept in game theory is *Nash equilibrium*, which can be defined as "[t]he combination of strategies that players are likely to choose is one in which no player could do better by choosing a different strategy given the strategy the other chooses."<sup>182</sup> In this situation, no player has an incentive to change their strategy.

As a matter of fact, Von Neumann's minimax and Nash equilibrium are equivalent in games where the players interact only once, as one can observe in the prisoner's dilemma, the most well-known game theoretic structure. Elaborated in formal terms by the mathematicians Merrill Flood and Melvin Dresher and popularized by the Princeton professor Albert Tucker, the prisoner's dilemma shows how improbable the emergence of cooperation among rational agents is.

According to Tucker's formulation of the dilemma, the police arrests two members of a gang, A and B, and imprison them in isolated cells, with no means of communication. Since the police do not have enough evidence to convict both of the thugs on the principal charge, they develop a plan to induce betrayal between the suspects. The officers offer the following bargain to them: (a) if both of them betrays the other, each serves 2 years in prison; (b) if A betrays B, but B stays in silence, A will be freed and B will serve 3 years in prison (and vice versa); (c) if both suspects remain in silence, they will only serve 1 year in prison.<sup>183</sup>

What should the prisoners do? Should one betray the other? Or should they stay quiet and hope that the other would do the same? The only rational solution, which obeys both Nash equilibrium and the minimax theorem, is to betray the other suspect. To understand this, one has to take notice of the formal structure of the game: the best possible result for each of the suspects is to be set free. But this is an impossible result, which does not exist in the payoff matrix. The best solution for *both* players is to serve 2 years in prison, and this is also the second-best solution for *each* player. But it is not rational to expect that things work out this way. Both agents would have to assume, in order to achieve this payoff, that the other player stayed quiet, which would be irrational due to the risk of falling into the worst possible scenario — serving 3 years in prison while the other suspect is set free. There is no rational basis to expect that the other player will stay

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182 In Baird, D. G., Gertner, R. H. and Picker, R. C. (1994). *Game Theory and the Law*. Cambridge: Harvard University Press. p. 21.

183 See Poundstone, W. (1992). *Prisoner's Dilemma*. New York: Anchor Books. p. 118.

in silence. The only rational solution is that each suspect betrays the other, and this is also the *third worst possible result for each player*.

This is a disappointing result for the theory of cooperation. After all, the structure of the dilemma reflects many real-life situations where we should expect altruistic behavior to emerge. Why doesn't it happen as a result of rationality? In order to address this question, Merrill Flood and Melvin Dresher proposed an experiment, based on a slightly changed prisoner's dilemma. Instead of playing the game only in one round as in the original structure, the players would play the games in multiple rounds, choosing between two strategies — cooperate or defect. By doing this structural modification, the Flood-Dresher experiment induced the evolution of cooperation. After the first few rounds, the players realized that the most efficient strategy for themselves was to cooperate with the other player, as long as the other player also did the same. The experiment shows that playing the dilemma a single time or iteratively changes the solution of the game: in a one-round dilemma, the solution is to cheat; in a multiple rounds dilemma, the equilibrium changes to a cooperative solution.<sup>184</sup>

The conclusion arrived at in the Flood-Dresher experiment was reinforced in the famous tournaments held by the political scientist Robert Axelrod around 1980.<sup>185</sup> In two tournaments, Axelrod tested which strategy would prove to be the best in an iterated prisoner's dilemma framework where players who adopted different strategies would come across one another and have to choose whether to defect or cooperate. To simulate natural selection, the worst strategies would be gradually eliminated from the game and the best ones would be maintained. The winning strategy in both tournaments was the simple Tit-for-Tat. This strategy cooperates in the first move and then replicates whatever the other player has done in the previous round. In so doing, it began showing good faith to establish a cooperative interaction, but then it was quite vengeful; whenever the other player defected, it would retaliate that move. In the iterated prisoner's dilemma, the Tit-for-Tat strategy could do better than free riders, because it would benefit from a long-term cooperation with altruistic players, without being subject to exploitation from opportunistic strategies.

This is the core of the second evolutionary mechanism that sustains cooperation, direct reciprocity. Altruism can emerge if there are repeated encounters between players who can decide whether to cooperate or to defect at every interaction. There are some conditions for the emergence of

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184 See Poundstone, W. (1992). Prisoner's Dilemma. pp. 106-107.

185 See Axelrod, R. M. (2006). The Evolution of Cooperation.

altruism, however: first of all, the individuals must remember past interactions in order to decide whether they will cooperate or defect; and, also, there must be a high probability of future interaction between the agents.

In this sense, direct reciprocity depends on altruistic punishment. If a player always cooperates, they might be easily exploited by free riders. Tit-for-Tat has been successful in tournaments, however, because it punished other opportunistic strategies. Nevertheless, altruistic punishment can only sustain cooperation in small societies, as the cooperation is supported by the direct punishment applied by those who have been previously harmed by a free rider. In large populations, on the other hand, there is always the possibility that free riders will interact with altruists who they have not exploited yet, which would result in obtaining the benefits of cooperation for free and without suffering the costs of punishment. Even if free riders sometimes interact with altruists who they have harmed in the past, it would pay to be selfish because there are always other altruists to exploit.<sup>186</sup>

Nevertheless, this mechanism explains certain animal behaviors, such as the sharing of blood among vampire bats<sup>187</sup> and the grooming reciprocity in chimpanzees.<sup>188</sup> It has even been used to explain some human behaviors. In Robert Trivers' seminal article on reciprocal altruism, features of human societies such as friendship, moralistic aggression related to punishing free riders and maintaining cooperation, and feelings of sympathy, guilt and gratitude, are all explained in terms of direct reciprocity. According to Trivers, "[...] given the universal and nearly daily practice of reciprocal altruism among humans today, it is reasonable to assume that it has been an important factor in recent human evolution and that the underlying emotional dispositions affecting altruistic behavior have important genetic components."<sup>189</sup>

However, explaining altruistic behavior through direct reciprocity turned out to be not as promising as Trivers might have first thought. Direct reciprocity relies on altruistic punishment. If a naïve player always cooperates no matter with whom they are interacting, cheaters might easily

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186 See Richerson, P. J. and Boyd, R. (2008). Not by Genes Alone: how Culture Transformed Human Evolution. p. 200.

187 See Corning, P. A. (2008). Holistic Darwinism: The New Evolutionary Paradigm and Some Implications for Political Science. *Politics and the Life Sciences*, 27(1), 22-54.

188 See Newton-Fisher, N. E. and Lee, P. C. Grooming Reciprocity in Wild Male Chimpanzees. *Animal Behaviour*, 81, 439-446.

189 See Trivers, R. L. (1971). The Evolution of Reciprocal Altruism. p. 48.

exploit their strategy. Tit-for-Tat has been so successful in the tournaments because it punished any player who tried to exploit it. Over the long term, however, it is possible that other strategies could obtain even better results by cooperating with Tit-for-Tat rather than defecting. There is evolutionary game-theoretic evidence that other strategies might get even better results than Tit-for-Tat, such as Win-Stay or Lose-Shift, which is a strategy where the player repeats their previous move if it has been successful or changes it when they obtain a bad result. Tit-for-Tat can lead to a long sequence of retaliation because it can respond aggressively to a mistake committed by another player, who might have played "defect" while the intended strategy was "cooperate." Win-Stay or Lose-Shift can address these situations by responding more accurately to the moves of the other player.<sup>190</sup>

In addition, it is important to notice that, in large societies, the marginal costs of being punished for being a free rider might diminish to a point at which it pays to defect. This causes cooperation to fail. Those employing opportunistic strategies would have better odds to reproduce and increase the proportion of their genes in large societies than altruists. This happens because direct reciprocity relies on the circumstance that the same individuals will have repetitive encounters, allowing for a long-term relationship in which cooperation will pay. However, in larger societies, there is always the possibility that a free rider will meet strangers with no reasonable expectation of having future interactions. The larger the society, the lower the marginal cost of being punished and the more it pays to be a free rider, thus imposing a threshold to the possibilities of growth of any given society.<sup>191</sup>

In any case, direct reciprocity requires constant monitoring of other individuals' behavior, which demands complex cognitive capacities. An individual must have a brain with a good memory in order to remember their past interactions with other members of their group, and they also require a psychological disposition to punish cheaters in order to avoid being exploited.

In fact, there is evidence that both free-riding and cognitive limitations have been a real issue to our hominin ancestors, whose brains evolved in

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190 See Nowak, M. A. (2006). *Five Rules for the Evolution of Cooperation*. p. 1560.

191 Boyd, R., Richerson, P. J., Gintis, H. and Bowles, S. (2005). The Evolution of Altruistic Punishment. In Boyd and Richerson ( ), *The Origin and Evolution of Cultures* (pp. 241-250). Oxford: Oxford University Press. p. 242.

response to the selective pressures posed by social life.<sup>192</sup> The British anthropologist and evolutionary psychologist Robin Dunbar studied the relationship between the relative dimensions of the neocortex in relation to the brain and the standard group size of different primate species. As a result, he found a direct correlation between these measurements, which suggests that increasing average group size led to the evolution of a larger neocortex.<sup>193</sup> This same result ensued in the evolution of the hominin lineage: the *Australopithecus afarensis*' average group size is approximately sixty members, *Homo habilis* lived in groups of no more than 80 individuals, and the average *Homo erectus* group held approximately 120 members.

Progressively, each of these hominid species evolved a larger neocortex in proportion to their brain volume. According to Dunbar, the covariation between neocortex growth and group size was not a coincidence, considering that life in larger groups demands cognitive abilities that only a more complex brain could have and, in this sense, that neocortex size is a constraint on group size in primates.<sup>194</sup> However, this leads to a puzzle that must be solved: following this progression, one should expect the average size of human societies to amount to no more than 150-160 individuals, which is still much smaller than most human social groups. How can this be explained?

## 2.2. Gene-culture Coevolutionary Foundations of Human Pro-social Behavior

This is as far as exclusively biological theories have gone in understanding the evolution of altruism. Cooperation is possible in sizable groups of genetically related individuals through kin selection, and it is also possible in small groups of unrelated individuals through direct reciprocity. Given that many countries can be seen as huge cooperation networks consisting of millions (or billions!) of individuals, how can these human societies be explained?

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192 See Byrne, R. W. and Whiten, A. (1988). *Machiavellian intelligence: social expertise and the evolution of intellect in monkeys, apes, and humans*. New York: Oxford University Press.

193 See Dunbar, R. (1998). *Grooming, Gossip, and the Evolution of Language*. Cambridge: Harvard University Press. p. 112; Gowlett, J., Gamble, C. and Dunbar, R. (2012). Human Evolution and the Archaeology of the Social Brain. *Current Anthropology*, 53(6), 693-722.

194 See Dunbar, R. (1992). Neocortex size as a constraint on group size in primates. *Journal of Human Evolution*, 22(6), 469-493.

### 2.2.1. The Role of Indirect Reciprocity

A third mechanism, besides kin selection and direct reciprocity, was proposed to address this issue: *indirect reciprocity*. Unlike direct reciprocity, which accounts only for the past interactions of the agent, indirect reciprocity also depends on observing how individuals behave toward one another. This mechanism enhances cooperation because the members of a group may observe and acknowledge the reputation of other members they have not met before.<sup>195</sup> This logic unveils one important feature of human moral and legal systems: the evolution of third-party punishment as a response to the violation of social norms. As discussed, direct reciprocity relies on dyadic punishment to foster cooperation, and an agent punishes a free rider that betrayed them in the past. Third-party punishment, on the other hand, relies on the punishment of free riders by agents who have not been affected by the cheaters' actions.<sup>196</sup>

According to Peter Richerson & Robert Boyd, sanctioning violations applied by third parties might lead to moralistic punishment, which might be more effective than dyadic punishment to establish cooperation in larger societies.<sup>197</sup> Direct reciprocity is not so effective in sizable groups because the cost of being punished is inversely proportional to the community's size. On the other hand, moralistic punishment increases this cost because the free rider can be punished not only by those with whom they have previously interacted but also by any other individual who knows about their bad reputation.

Although indirect reciprocity solves some problems, it leaves others unresolved. The first unresolved issue is related to the cost of punishing others. There is an economic cost to punishing free riders, because of the need to spend time and energy in doing so, and the risks posed to the punisher's own physical health in pursuing and punishing opportunists. This cost might lead to a second-order free rider problem: individuals might be inclined to cooperate but not to punish those who fail to do so,<sup>198</sup> which

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195 See Nowak, M. A. and Sigmund, K. (2005). Evolution of Indirect Reciprocity. *Nature*, 437(7), 1291-1298.

196 See Fehr, E. and Fischbacher, U. (2004). Third-Party Punishment and Social Norms. *Evolution and Human Behavior*, 25(2), 63-87.

197 See Richerson, P. J. and Boyd, R. (2008). Not by Genes Alone: how Culture Transformed Human Evolution. p. 200.

198 See Panchanathan, K. and Boyd, R. (2004). Indirect Reciprocity Can Stabilize Cooperation Without the Second-Order Free Rider Problem. *Nature*, 432(7016), 499-502.



could weaken indirect reciprocity because the fitness of cooperators who do not punish turns out to be greater than the fitness of those who do so because of the costs of punishing. In effect, punishers obtain the benefits from punishing, but also pay for it; and non-punishers (second-order free riders) obtain the reward from punishment without paying its price.<sup>199</sup>

Richerson & Boyd propose that this problem might have been addressed easily by natural selection if moralistic punishment were common and the punishments were sufficiently severe, because most people would "go through life without having to punish very much, which in turn means that a predisposition to punish may be cheap compared with a disposition to cooperate."<sup>200</sup> In this sense, an innate predisposition to punish first and second-order free riders might have evolved and stabilized cooperation through indirect reciprocity.

There is scarce evidence of indirect reciprocity in non-human animals.<sup>201</sup> For instance, recent research by Katrin Riedl, Joseph Call, and Michael Tomasello demonstrated that, although chimpanzees (*Pan troglodytes*) are able to punish cheaters who offend them directly, they do not castigate those who inflict harm on others.<sup>202</sup> The skill to punish those who offend others is fundamental to understanding certain features of human societies, such as the existence of legal and moral norms that are enforced by agents such as police officers and judges, who act to guarantee the punishment of individuals who have offended other citizens. If individuals only punished those who had offended them directly, how could it be possible to understand the very existence of normative institutions whose function is precisely to enforce rules and standards?

This reasoning leads to the following mystery: why are humans able to be involved in indirect reciprocity, unlike chimpanzees or other primates whose behavior is significantly similar to ours, but can only accommodate direct reciprocity? Moral and legal reasoning both require the normative evaluation of another individual's behavior not only toward the evaluator

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199 See Richerson, P. J. and Boyd, R. (2008). *Not by Genes Alone: how Culture Transformed Human Evolution*. p. 200.

200 See Richerson, P. J. and Boyd, R. (2008). *Not by Genes Alone: how Culture Transformed Human Evolution*. p. 200.

201 See Barta, Z., McNamara, J. M., Huszár, D. B. and Taborsky, M. (2011). Cooperation among Non-Relatives Evolves by State-Dependent Generalized Reciprocity. *Proceedings. Biological sciences / The Royal Society*, 278(1707), 843-848.

202 See Riedl, K., Jensen, K., Call, J. and Tomasello, M. (2012). No Third-Party Punishment in Chimpanzees. *Proceedings of the National Academy of Sciences of the United States of America*, 109, 14824-14828.

but also in relation to third parties. In this sense, Ernst Fehr and Urs Fischbacher indicate that the very existence of social norms depends on third-party punishment, because frequently violating norms does not harm anyone individually, so there is no single individual that could respond to these violations.<sup>203</sup>

Answering this question is of prime importance to understanding normative reasoning and, as a result, the evolution of law and morality in our species. Why is indirect reciprocity so rare in nature? Part of the answer is related to the fact that indirect reciprocity requires more cognitive capacities than direct reciprocity, because one needs to remember not only their past interactions but also the outcome of the interaction between other individuals. Additionally, living in small societies requires less cognitive capacity than living in larger societies, because the number of interactions every individual is required to remember is smaller.<sup>204</sup>

Overcoming these cognitive constraints was a crucial development in our evolutionary history. However, evolution is not teleological; natural selection does not necessarily lead to more intelligent beings that live in larger societies composed of genetically unrelated individuals. On the contrary, natural selection is quite frugal; it selects adaptations that efficiently perform particular functions without relying on resource-demanding, complex biological structures. There is a trade-off between efficiency and metabolic cost: if two adaptations can do the job, natural selection will more likely favor the evolution of the least resource-consuming option.<sup>205</sup>

Because complex brains are highly expensive due to their metabolic costs, the environmental pressures that led to the evolution of such brains must be understood.<sup>206</sup> There are good reasons to suppose that living in large groups demands (at least) the ability to engage in indirect reciprocity, which requires complex cognitive capacities. Here is the evolutionary puzzle: why has the hominin lineage had to live in large groups in which these expensive abilities would prove useful? Other primate species are quite

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203 See Fehr, E. and Fischbacher, U. (2004). Third-Party Punishment and Social Norms. p. 64.

204 Assessing all possible bargaining situations that might arise from interactions among multiple agents might lead to a combinatorial explosion whose evaluation would demand an exponential increase of brain processing power.

205 See Richerson, P. J. and Boyd, R. (2008). Not by Genes Alone: how Culture Transformed Human Evolution. p. 158.

206 See Aiello, L. C. and Wheeler, P. (1995). The Expensive-Tissue Hypothesis: The Brain and the Digestive System in Human and Primate Evolution. *Current Anthropology*, 36(2), 199-221.

adapted to life in relatively small groups – why has that not also been the case for the hominin lineage?

This issue has been the subject of debate over the past three decades. And many of the suggested answers to this question illuminate our understanding of the human normative behavior – our ability to evaluate social situations through the lenses of moral/legal rules and principles. Therefore, to understand the reasons behind the evolution of normative thinking in human ancestors, the evolutionary forces must be sought within the cognitive abilities underlying indirect reciprocity that proved to be efficient adaptations.<sup>207</sup>

First, it is a reasonable premise in evolutionary thinking to assume that extant species that share certain traits have inherited them from a common ancestor. The evolutionary anthropologist Christopher Boehm, for instance, proposes that it would be theoretically possible to reconstruct certain behavioral traits of ancestral Pan – the "shared antecedent of humans and our two genetically closest relatives, *Pan troglodytes* (chimpanzees) and *Pan paniscus* (bonobos)."<sup>208</sup> To perform this reconstruction, we should look for strong similarities between the human species and these ancestors in order to expose the common traits that humans, chimpanzees and bonobos inherited from the ancestral Pan. Boehm himself identified many of these traits: territorial tendencies, dyadic dominance-and-submission be-

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207 This evolutionary reasoning presumes that the evolution of such cognitive capacities is an adaptation. This assumption, however, is not uncontroversial. The paleontologist Stephen Jay Gould and the evolutionary biologist Richard Lewontin prefer to adopt a conservative approach about explanations based on adaptationism. According to these scholars, adaptive explanations are usually incorrect because many traits might be historical accidents or side effects related to the evolution of other features. See Gould, S. J. and Lewontin, R. C. (1979). The Spondyls of San Marco and the Panglossian Paradigm: a Critique of the Adaptationist Programme. *Proceedings of the Royal Society of London. Series B, Containing papers of a Biological character. Royal Society (Great Britain)*, 205(1161), 581-598. Nevertheless, Richerson and Boyd argue that adaptive explanations are useful because they help us understand how organisms are well suited to their environment. See Richerson, P. J. and Boyd, R. (2008). Not by Genes Alone: how Culture Transformed Human Evolution. p. 102. According to them, Gould and Lewontin's skepticism "would be justified only if, in addition, non-adaptive outcomes were much more common than adaptive ones, or if the cost of mistakenly invoking an adaptive explanation was very much higher than the cost of mistakenly invoking a nonadaptive explanation. [They] do not think that either of these two things is true."

208 See Boehm, C. (2012a). Ancestral Hierarchy and Conflict. *Science*, 336(6083), 844-847.

havior, engagement in community-wide coalitions both to threaten foreigners and rebel against higher-ranking males abusing against subordinates.<sup>209</sup>

To this effect, ancestral Pan most likely had the psychological features that made them capable of engaging in cooperative behavior through the logic of kin selection and direct reciprocity. There is abundant evidence of nepotistic biases among chimpanzees, bonobos, and humans, which makes cooperation among genetically close individuals more likely. Additionally, chimpanzees and bonobos, like humans, are capable of engaging in dyadic cooperation maintained by altruistic punishment.<sup>210</sup> In the hominin lineage, Darwinian evolutionary processes selected innate cognitive structures that enabled cooperation through a particular moral psychology. The primate mind copes with its social environment through cognitive biases that induce cooperative behavior toward kin and altruists.<sup>211</sup> The ultimate cause of cooperation within our lineage is thus the natural selection of innate cognitive mechanisms that operate through the logic of both kin selection and direct reciprocity; and its proximate cause is the evolved moral psychology that allows specific individuals to engage in a reasoning based on that type of logic.<sup>212</sup>

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209 See Boehm, C. (2012a). Ancestral Hierarchy and Conflict. p. 844.

210 See Boehm, C. (2012a). Ancestral Hierarchy and Conflict. p. 844.

211 These biases are fast and frugal heuristics that enable quick and (usually, but not always) correct decisions. As previously discussed, natural selection favors the evolution of "cheap" adaptations – traits that accomplish their duties without spending too many resources. Cognitive biases can be understood as rules-of-thumb that usually display the correct answer to a specific situation, but not always. The evolution of a brain that could correctly respond to every state of affairs in a reasonable amount of time would demand infinitely more energy and structural complexity than a biased mind that can be effective in most situations. See Goldstein, D. G. and Gigerenzer, G. (1996). Reasoning the Fast and Frugal Way: Models of Bounded Rationality. *Psychological Review*, 103(4), 650-669.

212 According to the evolutionary biologist Ernst Mayr, ultimate causes and proximate causes should be distinguished in order to fully understand an evolutionary phenomenon. Proximate causes govern the immediate responses of the individual and their organic structures to the actual factors of their environment. On the other hand, ultimate causes are related to the evolutionary explanations of a particular behavior, which caused the selection of the proximate structures that directly cause that behavior. Ultimate causes are evolutionary causes – the environmental pressures that led to the selection of particular traits, the path dependent traits that turned out to be necessary for the evolution of further complex traits, and so on. As an example of this, Mayr explains the migration of a bird species by referring to both proximate and ultimate causes: "Now, if we

The second important element for the evolution of cognitive skills in order to engage in indirect reciprocity is related to the Machiavellian intelligence hypothesis.<sup>213</sup> According to this hypothesis, primates evolved bigger brains as an adaptation to life in unusually complex societies in which struggling for existence means not only coping with the natural environment but also with the challenges posed by other socially intelligent agents. Intense social competition led to the selection of those who were more capable of successfully adopting social behaviors, which include lying, cunning behavior, forming coalitions, and manipulating the behavior of others. The presence of greater social intellect in some individuals in a primate group would exert selection pressures on the social intelligence of others, which would in turn lead to the evolution of even more complex social brains. The result would be an evolutionary arms race between the increasingly sophisticated ability to predict the behavior of others and the skills to manipulate them. This process led to the evolution of more complex primates that were capable of attributing mental states (intentions, beliefs and desires) to others in order to predict and anticipate their behavior, which is a skill typically known as mind reading or theory of mind.<sup>214</sup>

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look over the four causations of the migration of this bird once more we can readily see that there is an immediate set of causes of the migration, consisting of the physiological condition of the bird interacting with photoperiodicity and drop in temperature. We might call these the *proximate* causes of migration. The other two causes, the lack of food during winter and the genetic disposition of the bird, are the *ultimate* causes. These are causes that have a history and that have been incorporated into the system through many thousands of generations of natural selection. It is evident that the functional biologist would be concerned with analysis of the proximate causes, while the evolutionary biologist would be concerned with analysis of the ultimate causes. This is the case with almost any biological phenomenon we might want to study. There is always a proximate set of causes and an ultimate set of causes; both have to be explained and interpreted for a complete understanding of the given phenomenon." See Mayr, E. (1961). *Cause and Effect in Biology*. p. 1503.

213 See Byrne, R. W. and Whiten, A. (1988). Machiavellian intelligence: social expertise and the evolution of intellect in monkeys, apes, and humans.

214 See Cheney, D. and Seyfarth, R. (2007). *Baboon Metaphysics - the evolution of a social mind*. Chicago: The University of Chicago Press. pp. 197-198 As stated by Orbell, et al.: "At the heart of the 'political intelligence' hypothesis is the assumption that, throughout human evolution (or at least in the Pleistocene 'environment of evolutionary adaptation' or EEA), there was an arms race between such manipulative and mindreading capacities. Social living was indeed a necessary condition for our ancestors' survival, but social living also meant that any mutation produced advantage in manipulation also provided a basis for selection on mindreading and vice versa—producing an upwardly ratcheted arms

Understanding others' minds to predict their behavior and react accordingly might have led to the increase in group size – which, in turn, became itself an environmental pressure for the evolution of more complex cognitive skills. Socially sophisticated minds may accommodate larger groups, and larger groups demand even more sophisticated minds in a coevolutionary dance between group size and social intelligence.

At this stage, one question still remains unanswered: social skills are required for the growth of groups, but why did groups have to grow? Could the number of individuals in a group not remain stable and compatible with the cognitive skills of its members? This question admits too many correct answers. The quick-and-dirty answer would be that it is evolutionarily stable to live in small groups where relatively simpler social minds are able to accommodate social complexity, and many primate species are certainly well adapted to life in smaller groups. However, bigger groups should have an adaptative advantage over smaller groups in competition for resources and in eventual conflicts, being reasonable to assume an evolutionary force towards larger societies, whose stability would depend on particular psychological tenets.

Evolution is path dependent. Even the slightest difference between our ancestors' minds and the psychology of other primates could have given rise to enormously different evolutionary results. Although there are many controversies about what the psychological differences were between our ancestors and other apes, gene-culture coevolutionary researchers propose that by the time our hominin lineage began to separate from other primates, our ancestors had the mental-reading abilities that were necessary for a skill that would prove to be very useful: the ability to imitate. It is still not clear why other primates, although skilled enough to learn socially through other means, are not capable of truly imitating as we can.<sup>215</sup> Richerson & Boyd suggest that imitation skills may have originated as an incidental effect of mind reading in our lineage, and it might have led to the evolution of rudimentary cultural traditions, which in turn required a more sophisticated ability to imitate.<sup>216</sup>

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race that continually increased both capacities." See Orbell, J., Morikawa, T. and Allen, N. (2002). The Evolution of Political Intelligence: Simulation Results. *British Journal of Political Science*, 32(4), 613-639.

215 Susan Blackmore discusses the ability of other apes to learn socially through stimulus enhancement, local enhancement, or other simple forms of social learning. See Blackmore, S. (2000). *The Meme Machine*. pp. 48-50.

216 See Richerson, P. J. and Boyd, R. (2008). *Not by Genes Alone: how Culture Transformed Human Evolution*. p. 138 ("Some have suggested that primate in-

According to this hypothesis, imitation became an important adaptation because it is an evolutionarily stable strategy to accommodate moderately stable environments. In these conditions, animals capable of learning individually and of imitating the behavior of others would do better than those who rely either solely on innate behavioral strategies or on individual learning.<sup>217</sup> Imitation enables the fast spreading of adaptive behaviors through a particular population because the environmental changes are slow enough to allow for the social transmission of adaptive information. In extremely unstable conditions, however, social learning would not be reliable because it would increase the diffusion of maladaptive behaviors in a group. Richerson and Boyd propose that our ancestors coped with moderately stable conditions, where it would pay to imitate. Along the lines of their conjecture, the evolution of social learning in primates may be understood as an adaptation to the increased climate variation that took place in the Pleistocene, between 1.8 million years BCE and 11,500 BCE.<sup>218</sup> Our ancestors might have been the only species with mind-reading skills sophisticated enough to induce the evolution of faithful imitation abilities and thus be able to cross this cognitive threshold.

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telligence was originally an adaptation to manage a complex social life. Perhaps in our lineage the complexities of managing food sharing, the sexual division of labor, or some similar social problem favored the evolution of a sophisticated ability to take the perspective of others. Such a capacity might incidentally make imitation possible, launching the evolution of the most elementary form of complex cultural traditions. Once elementary complex cultural traditions exist, the threshold is crossed. As the evolving traditions become too complex to imitate easily they will begin to drive the evolution of still more-sophisticated imitation.").

- 217 Imitation is unlikely to evolve in unstable environments because natural selection would rather favor the gradual evolution of innate behavioral strategies that can cope adequately with natural challenges without requiring such a complex cognitive capacity. Because the evolution of specific innate adaptations able to cope with particular environmental issues requires time (hundreds or thousands of years!), innate behaviors are adaptive to deal with stable environments. In this sense, innate specific adaptations cannot accommodate highly unstable environments; in these conditions, an animal capable of learning its way individually through trial-and-error might do better than another that relies on an innate behavioral strategy. See Richerson, P. J. and Boyd, R. (2008). *Not by Genes Alone: how Culture Transformed Human Evolution*. p. 112.
- 218 See Richerson, P. J. and Boyd, R. (2008). *Not by Genes Alone: how Culture Transformed Human Evolution*. pp. 133-134.

2.2.2. The Emergence of Culture and Cultural Evolution as Preconditions to Cooperation among Humans

Imitation allowed for the emergence of a different type of evolutionary system – cultural inheritance.<sup>219</sup> However, the ability to create culture is not a real difference between us and other animals. Other species are also able to maintain cultural traditions over many generations.<sup>220</sup> The difference between those species and us involves another aspect of our ability to process culture: by having the skills to imitate accurately, we not only learn aspects of our culture but also transmit our own cultural contributions to future generations. In this way, humans can accumulate culture and transmit, via language, useful innovations proposed by one generation to the next, gradually storing solutions to environmental and social problems.<sup>221</sup>

Understanding culture as an inheritance system leads us to questions involving its evolutionary dynamics. As Dan Dennett argues, natural selection may be understood as an algorithmic process that occurs whenever three key conditions are satisfied: variation, inheritance/replication and differential fitness.<sup>222</sup> Does cultural evolution satisfy these conditions? According to the anthropologist Alex Mesoudi, all three conditions are met by cultural dynamics.<sup>223</sup>

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219 Although there is an enormous debate about the precise meaning of culture, I adopt the concept elaborated by Peter Richerson and Robert Boyd. In this sense, culture is "information capable of affecting individuals' behavior that they acquire from other members of their species through teaching, imitation, and other forms of social transmission." See Richerson, P. J. and Boyd, R. (2008). Not by Genes Alone: how Culture Transformed Human Evolution. p. 5.

220 There is some evidence that non-human primates, such as chimpanzees and some species of monkeys, also display "culture" in some sense of the concept. See Martínez-Contreras, J. (2011). O modelo primatológico de cultura. In Abrantes (Ed.), (pp. 224-240). Porto Alegre: Artmed. pp. 224-240. Some studies even suggest that other unexpected species, like dolphins and crows, also have culture. See Blackmore, S. (2000). The Meme Machine. p. 50.

221 See Richerson, P. J. and Boyd, R. (2008). Not by Genes Alone: how Culture Transformed Human Evolution. pp. 125-143.

222 See Dennett, D. C. (1996a). Darwin's Dangerous Idea: Evolution and the Meanings of Life. p. 343.

223 See Mesoudi, A., Whiten, A. and Laland, K. N. (2004). Perspective: Is Human Cultural Evolution Darwinian? Evidence Reviewed from the Perspective of "The Origin of Species." *Evolution*, 58(1), 1-11.



First, there is much evidence with respect to cultural variation not only regarding the same cultural trait<sup>224</sup> (such as different types of arrows) – which would be analogous to within-species variation – but also among distinct cultural traits (e.g., arrows, axes and shields) and between the cultural sets of different populations (e.g., different languages).<sup>225</sup>

Second, there is also inheritance of cultural traits via cultural transmission. People learn through (1) vertical transmission, when a parent teaches something to their own offspring; (2) oblique transmission, when information is transferred from a member of a former generation to a non-related member of the next generation; and (3) horizontal transmission, when communication occurs among individuals of the same generation.<sup>226</sup> Mesoudi gathers evidence from technological and scientific innovation to demonstrate that there are gradual accumulations of tiny modifications in culture. The invention of the steam engine by James Watt, for instance, was built on the preexisting Newcomen steam engine; and mathematics also evolved "through the accumulation of successive innovations by different individuals over time."<sup>227</sup>

Third, the adoption of distinct cultural traits leads to differential fitness among individuals. The odds that an individual survives and reproduces are affected not only by biological traits but also by the adopted cultural variants. And, as more genetic fitness means increasing the probability that genes will spread throughout a population, one might also think in terms of cultural fitness. Certain cultural traits are more likely to increase their proportion in the 'cultural pool' as a result of their effect on their carrier's

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224 The terms 'cultural trait', 'cultural variant' and 'meme' will be used to refer to the same concept. However, it is important to keep in mind that the adoption of each term relies on different theoretical assumptions. A technical use of the term 'meme', for instance, connotes a strict analogy between discrete cultural particles and genes, understood as discrete biological particles. See Dawkins, R. (2006). *The Selfish Gene*. p. 192. I am not committed to this assumption.

225 Alex Mesoudi also refers to technological evolution as an example of variation in human cultures, by mentioning the huge number (7.7 million) of patents issued only in the United States between 1790 and 2006. He also presents some anecdotal evidence, such as the fact that there are more than ten thousand religions spread around the world, many of which are divided into thousands of other separate denominations. See Mesoudi, A. (2011). *Cultural Evolution: How Darwinian Theory can Explain Human Culture and Synthesize the Social Sciences*. p. 28.

226 See Cavalli-Sforza, L. L. (1986). Cultural Evolution. *American Zoologist*, 26(3), 845-855.

227 See Mesoudi, A. (2011). *Cultural Evolution: How Darwinian Theory can Explain Human Culture and Synthesize the Social Sciences*. p. 33.

behavior. Thus, there is competition between different memes,<sup>228</sup> and the most efficient ones grow over the long run. Differential fitness can be observed both on the psychological and the social level. Memes compete for the memory within an individual; some cultural variants are easier to remember than others because they are more compatible with innate cognitive biases. In this sense, they would be more imitated than other variants.<sup>229</sup> However, they also compete with memes from different cultures, and more efficient memes (cultural traits that provide better results to their carriers) are more likely to spread.<sup>230</sup> This might be construed as a war between two tribes that are culturally similar and that use slightly different weapons: tribe A warriors use bronze swords, and tribe B warriors use iron swords. Assuming that iron spears are better, tribe B would have better odds to win the war, and as a consequence, would kill more warriors and slowly increase the proportion of iron swords (and the cultural traits needed for their production) in the population of 'weapons'.

If this picture is correct, then culture meets the three conditions needed for Darwinian evolution. However, this does not mean that culture evolves via the same mechanisms that cause biological evolution. According to the gene-culture coevolutionary theory – which is also known as dual inheritance theory –, many evolutionary forces act on both inheritance systems, such as natural selection, mutation and drift.<sup>231</sup> However, cultural evolution is also subject to culture-specific evolutionary forces, which Richerson and Boyd call decision-making forces, which derive from the psychological mechanisms involved in learning cultural traits and their transmission to others. Our cognition is not content neutral, it is biased toward learning certain beliefs and ideas instead of others, and these biases affect how culture evolves and what range of cultural possibilities are compatible with our innate psychology. As Morten Christiansen et al. state, "cultural evolution does not take place in a biological vacuum but is shaped by biological

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228 Memes, here, refer to an idea first expressed by Richard Dawkins in his *The Selfish Gene*. According to him, memes are the analogous of genes, but in the domain of cultural evolution.

229 See Mesoudi, A. (2011). *Cultural Evolution: How Darwinian Theory can Explain Human Culture and Synthetize the Social Sciences*. p. 31; Richerson, P. J. and Boyd, R. (2008). *Not by Genes Alone: how Culture Transformed Human Evolution*. p. 75.

230 See Richerson, P. J. and Boyd, R. (2008). *Not by Genes Alone: how Culture Transformed Human Evolution*. p. 207.

231 See Richerson, P. J. and Boyd, R. (2008). *Not by Genes Alone: how Culture Transformed Human Evolution*. p. 70.

constraints arising from the nature of our thought processes, pragmatics, perceptuo-motor constraints, and cognitive limitations on learning and processing."<sup>232</sup>

These biases evolved because they allowed for the most effective ways to cope with the natural and social environments; they are fast and frugal heuristics nested within our minds that enable us to make decisions quickly. Some of these biases may have been selected under the same circumstances that shaped our capacity for faithful imitation discussed above. For instance, Richerson and Boyd argue that the very evolutionary forces that selected the ability to imitate might have induced the evolution of a conformity bias, i.e., the tendency to adopt those beliefs, norms and desires that are common in the community to which one belongs.<sup>233</sup> The tendency to imitate made our species capable of quickly copying the behavior of others; the conformist bias influences us to imitate the most common cultural traits in our communities.

Richerson and Boyd also discuss other biases that induce the evolution of particular cultural variants instead of others, such as content-based biases, which can result either from the cost-benefit calculation of alternative memes or from the very structure of our cognition, and which favor the learning of particular types of cultural traits instead of others. There is also a model-based bias, the predisposition to imitate either prestigious individuals (prestige bias) or individuals similar to oneself.<sup>234, 235</sup> In the 19th century, the role of model-based imitation in explaining social dynamics had

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232 See Christiansen, M., Chater, N. and Real, F. (2009). The Biological and Cultural Foundations of Language. *Communicative & Integrative Biology*, 2(3), 221-222.

233 See Richerson, P. J. and Boyd, R. (2008). Not by Genes Alone: how Culture Transformed Human Evolution. p. 121.

234 See Richerson, P. J. and Boyd, R. (2008). Not by Genes Alone: how Culture Transformed Human Evolution. p. 70.

235 See Richerson, P. J. and Boyd, R. (2008). Not by Genes Alone: how Culture Transformed Human Evolution. p. 70 ("By imitating the successful, you have a chance of acquiring the behaviors that cause success, even if you do not know anything about which characteristics of the successful are responsible for their success. If you can accurately imitate everything they do, you ought to be a success too, at least insofar as success is based on culturally transmissible characters."). Although these cognitive biases underlie much of what we usually call 'rationality' and they typically help us to get to the correct answers in most situations, it is also important to keep in mind that they also cause us to commit many mistakes. For instance, social psychology studies show that we are subject to self-deception (over optimism, overconfidence, self-attribution bias, confirmation bias, hindsight bias, cognitive dissonance and conservatism bias) and

already been revealed by the French sociologist Gabriel Tarde, who opposed Émile Durkheim's claim that sociology should not focus on individuals to explain society, because social facts have an objective existence independent of individuals and are intrinsically organized in the cultural domain. Tarde believed to the contrary, that social facts are not transmitted from the social group as a collective but from one individual to another through imitation.<sup>236</sup>

It is important to note that, insofar as Gabriel Tarde believed that imitation played a major role in explaining social dynamics, he also did not believe that biology had anything to offer to sociological theory. He agreed with Auguste Comte that sociology is established upon biology – a hypothesis that resembles E. O. Wilson's concept of consilience. However, he did not think that this meant the precedence of biology over the sociological domain. He contended that, although the superimposed realities of physics, chemistry, biology, psychology and sociology are compatible, the complexity of each ontological layer is self-contained on its own terms. More than that – Tarde argues – it may be the case that the higher layers of psychology and sociology may reveal more about the lower ontological strata than they can learn from them:

"Was it not by assimilating organisms to society and not society to organisms that the clearest (or least obscure) light was thrown on the great secret of life? Conceived of as an association of cells or as a federation of cellular societies or colonies, the living body becomes for the first time penetrable to man's probing. Much more than natural selection, the cellular theory puts us on the road to an explanation of the vital enigma."<sup>237</sup>

In sum, Gabriel Tarde argues that, as a higher science, sociology can teach more to biology than it could learn from it. Tarde's argument, however, misses the point. The French sociologist confuses the science and its object of study. He confuses biology (the science) with biology (the studied sub-

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heuristic simplification that cause information processing errors due to framing, categorization, anchoring, availability bias, cue competition, loss aversion, mood, hyperbolic discounting, and ambiguity aversion. See Montier, J. (2002). *Darwin's Mind: the Evolutionary Foundations of Heuristics and Biases*. *SSRN Electronic Journal*.

236 Tarde, G. (1969). *On Communication and Social Influence: Selected Papers* (Clark Ed.). Chicago: The University of Chicago Press. p. 4.

237 Tarde, G. (1969). *On Communication and Social Influence: Selected Papers*. pp. 79-80.

ject) and sociology with society. By not being conscious of this misunderstanding, Tarde feels authorized to posit that sociology is more complex than the biological sciences, and thus it can teach more to biology than learn from it. However, Comte's hierarchy of sciences is not a theoretical, but an ontological assumption. Biological sciences are foundational to sociology because the biological world underlies the very possibility of sociality. This confusion can be observed in the statement that sociology helped the understanding of biology because the application of sociological concepts (association of cells and federation of cellular societies) to the biological world shed light on cellular theory. This is not a direct application of sociological concepts in biological theory, but a sociological metaphor to describe biological phenomena.

His thesis could justify saying the opposite as well: one could say that biological theories are foundational to sociology because concepts such as "social organism," or understanding society as if it had a "head" and a "body," have been used in social theory. One should remember that Durkheim refers to "organic solidarity" as a central concept of his sociology, but this would be simply a metaphorical use of concepts borrowed from biology, and not a biological theory of society. In this sense, Tarde's example cannot be read as a sociological theory of biology, as he suggests. It is also useful to acknowledge that Tarde's thesis on imitation as the source of social facts confuses the social domain with the cultural domain. Sociology is thus understood as a science that studies social facts; but what is a social fact? Following his theory, social facts are things such as "a word in a language, a religious rite, a trade secret, an artistic process, a legal provision, a moral maxim."<sup>238</sup> But each one of these examples is a cultural token; thus, the object of sociology is culture, not society.

There are many kinds of societies that are not studied by sociology, but by archaeology, biology and anthropology – such as the societies of eusocial insects or chimpanzees (which are studied by biologists) or the social environments in which our hominin ancestors evolved, which are subject to the interest of anthropologists and archaeologists. In this sense, the social precedes the cultural.

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238 Tarde, G. (1969). *On Communication and Social Influence: Selected Papers*. p. 115.

2.2.3. The Evolution of a Normative Mind: Gene-culture Coevolution and the Cognitive Foundations of Large-scale Altruism

Some of the already mentioned cognitive biases are directly related to the moral psychology that underlies moral and legal systems. For instance, David Sloan Wilson, Rick O. Gorman and Ralph R. Miller performed psychological experiments through which they discovered that we are prone to recall social norms and normative information.<sup>239</sup> We are innately equipped with a 'normative mind' that relies on a cognitive architecture founded on specific heuristics for evaluating the rightfulness/wrongfulness of concrete situations.<sup>240</sup> It should thus not surprise us that every known human society is based on normative systems, insofar as our minds are biased to interpret the world morally.<sup>241</sup>

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239 See O'Gorman, R., Wilson, D. S. and Miller, R. R. (2008). An Evolved Cognitive Bias for Social Norms. *Evolution and Human Behavior*, 29(2), 71-78.

240 See Almeida, F. (2013). As Origens Evolutivas da Cooperação Humana e suas Implicações para a Teoria do Direito *Revista Direito GV*, 17(1), 243-268.

241 This statement does not mean that our mind *only* interprets the world in a moral sense. There is evidence that we have innate knowledge about many particular features of our social and natural environment. Some psychologists suggest that our mind has engraved within it many naïve theories about the world: a "folk physics," i.e., an innate comprehension about the rules that govern the physical world; a "folk biology," an implicit understanding about the organic world; and a "folk psychology," our natural capacity to explain and predict the behavior of others based on an account regarding their inner mental states. See Churchland, P. S. (2008). The Impact of Neuroscience on Philosophy. *Neuron*, 60(3), 409-411. In addition, it is important to note that the neurological sciences have demonstrated that many of our moral judgments are grounded in mental processes that depend on the correct functioning of our brain to produce morally expected behavior. See Moll, J. and de Oliveira-Souza, R. (2007). Moral Judgments, Emotions and the Utilitarian Brain. *Trends In Cognitive Sciences*, 11(8), 1-3. Brain lesions and tumors may affect our behavior, as has been documented. One famous example of the potential of a tumor to contribute to the cause of violent behavior is the case of Charles Whitman. Until 1963, he had displayed an exemplary behavior, but then his behavior began to change for the worse; a former Mariner, he was court-martialed, lost his scholarship at the University of Texas, and began assaulting his wife. By this time, he began writing in his diary increasingly about having violent thoughts and a growing desire to shoot other people. On August 1, 1966, he brutally killed his wife and mother, just before he went to the University of Texas, where he killed fourteen persons and wounded thirty-one others before being killed himself by a police officer. Before these events, Whitman left a note where he expressed his regret and a desire to have his brain studied after his death in order to evaluate if there was anything wrong with it. And he was right. The autopsy revealed a glioblastoma brain tu-

The features displayed by our normative mind are fundamental to understanding the evolution of human societies and their social institutions. The first point to be considered is that evolution does not work out new adaptations from scratch; it always refashions older structures to fulfill its own purposes.<sup>242</sup> In this sense, it is reasonable to assume that we share with other primates many of their mental structures that cope with the social environment; thus, we are, like them, capable of engaging in altruistic behavior with our family (kin selection) and of sympathizing with non-related individuals in situations that favor direct reciprocity. We cooperate with those who show pro-social behaviors toward us, and we punish those who do not (altruistic punishment).

According to gene-culture coevolutionary theory, the combination of altruistic punishment and faithful imitation led to the return of group selection as a mechanism to explain cooperation in large-scale societies. Even George Price, one of the first biologists who discredited group selection,

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mor that affected his hypothalamus and his amygdala – regions usually associated with behavior control, impulsive aggression and violence. See Batts, S. (2009). Brain Lesions and their Implications in Criminal Responsibility. *Behavioral Sciences and the Law*, 27(2), 261-272. Consider the case of a forty-year-old man who had always displayed normal sexual behavior and suddenly began feeling sexual desire toward children. He was arrested and sentenced to either attend a rehabilitation program for the sexually addicted or face jail. Although he had the desire to stop his impulses, he could not control his will and misbehaved again. Just before the new sentencing, he felt a strong headache and had balance problems, and was sent to the hospital. Neurological examination identified a brain tumor in his right orbitofrontal cortex, which is involved in the regulation of social behavior. The tumor was removed and the man released. Some months later, he was caught secretly collecting child pornography and, by this time, he was also feeling strong headaches. Another neurological exam revealed the tumor recurrence. See Mackintosh, N. (Ed.). (2011). *Neuroscience and the Law*. London: The Royal Society. pp. 15-16. Moreover, not only tumors cause misbehavior. Underdeveloped brain structures and even brain injuries may also cause such offensive behavior. Psychopathy, for instance, is a disorder that involves the reduced capacity to feel guilt, empathy and attachment to others. Neurophysiological studies have identified two dysfunctional brain regions in psychopaths: the amygdala and ventromedial cortex, which are related to care-based morality. See Blair, R. J. R. (2007a). Aggression, Psychopathy and Free Will from a Cognitive Neuroscience Perspective. *Behavioral Sciences and the Law*, 25(2), 321-331; Blair, R. J. R. (2007b). The Amygdala and Ventromedial Prefrontal Cortex in Morality and Psychopathy. *Trends In Cognitive Sciences*, 11(9), 387-392.

242 See Beatty, J. and Desjardins, E. C. (2009). Natural Selection and History. p. 242.

thought that it might work as an evolutionary mechanism under very strict conditions. To succeed, group selection depended on the assumption that between-group selection is weak when compared with within-group selection. However, the possibility that individuals from one group could migrate to another erodes between-group variation and leads to genetic homogeneity between individuals of different groups and to the strengthening of within-group selection against between-group selection.<sup>243</sup> If groups were genetically equivalent, because the natural selection forces were acting upon individuals (and not groups), then variation between groups would not be possible.

#### 2.2.3.1. Moralistic Punishment and Imitation Strengthen Cultural Group Selection

Altruistic punishment and faithful imitation made it possible for selection among different groups to become stronger than the selection forces acting within group. Imitation leads to the spread of cultural variations inside a specific group. Nevertheless, if migration is possible, an individual who comes from a different group will likely bring part of their former society's culture to their new home. Their beliefs would soon be imitated by their new co-members and spread through their new group – which would lead to the mixing-up of different cultural sets within each population –, and the pressures for selection between different groups would be weakened.

Peter Richerson and Robert Boyd assume that this problem was solved as a result of our ancestors' capacity not only to imitate but also to imitate selectively. Their innate psychology was able to identify symbolic markers (signs that identify a group, such as clothing styles, dialect particularities, social customs, badges, and so forth) and to imitate those with whom they shared the same tokens. This ability might have evolved as the result of rapid cultural adaptation. Cultural evolution allows for rapid cultural adaptation to different environments. In this situation, it pays more to selectively imitate the local population, which is a more reliable source of information about which strategy is adaptive, than to follow what immigrants do.<sup>244</sup> Knowing how to identify the symbolic markers shared by the

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243 See Panchanathan, K. and Boyd, R. (2004). Indirect Reciprocity Can Stabilize Cooperation Without the Second-Order Free Rider Problem. p. 501.

244 See Richerson, P. J. and Boyd, R. (2008). Not by Genes Alone: how Culture Transformed Human Evolution. p. 212.



local population – and trying to imitate them – would increase the odds of adopting the adaptive behavior. Language has also played an important role in this scenario because it allows for the reliable transmission of symbols across a population.<sup>245</sup>

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- 245 In Pleistocene, our hominin ancestors began to evolve a larger neocortex and to live in larger groups. *Homo habilis* (2.5-1.9 million years BCE) lived in societies consisting of eighty individuals; *Homo erectus* (1.8 million–143,000 years BCE) lived in groups of 100-120 members; archaic humans (*Homo heidelbergensis*, *Homo rhodesiensis* and *Homo neanderthalensis* – 600,000–35,000 years BCE) lived in groups of 120-140 members. According to Robin Dunbar's projections, based on the proportional size of the neocortex, *Homo sapiens* would be able to live in communities consisting of 150-160 individuals – almost three times the average size of a chimpanzee society. The increase in group size required more than larger brains to monitor free riding, it also required new monitoring strategies. Among great apes, the most diffused strategy to keep regular surveillance over the behavior of others is through social grooming, a process that demands trust and develops bonds among members. But the habit of regularly removing dirt and parasites from another's fur is costly. It takes a lot of time that could have been spent in more crucial activities, such as having sexual intercourse or searching for food; and it exposes the individual to the threat of being attacked by a bully, because the groomed animal achieves a relaxed and quite defenseless state. Based on these costs, grooming is used in primate groups to develop bonds among their members and to evaluate friends and foes (who would not spend a lot of *useful* time to groom whom they dislike). However, the time spent in grooming grows in parallel with group size. See Lehmann, J. and Dunbar, R. (2009). Network Cohesion, Group Size and Neocortex Size in Female-Bonded Old World Primates. *Proceedings of the Royal Society of London. Series B, Containing papers of a Biological character. Royal Society (Great Britain)*, 276, 4417-4422. In small groups, there is no need to spend much time grooming, but it can take a lot of time in larger groups – and the activity may begin to interfere with engaging in other activities. As expected, there is ethnological evidence about the time spent in social bonding among primates: in smaller groups of monkeys, there is less time dedicated to grooming than in larger groups of chimpanzees and gelada baboons. See Dunbar, R. (2003). The Social Brain: Mind, Language, and Society in Evolutionary Perspective. *Annual Review of Anthropology*, 32, 163-181. However, language allows for the monitoring of behavior at a certain distance without interrupting other crucial activities, which can lead to reducing the time spent in grooming. Indeed, there is also ethnological evidence about increasing vocal communication as the average size of the groups of primates increases. The gelada baboons, which spend almost twenty percent of their time in grooming, are also the non-human species that show the most complex vocal communication and that live in the largest natural groups of primates. See Aiello, L. C. and Dunbar, R. (1993). Neocortex Size, Group Size, and the Evolution of Language. *Current Anthropology*, 34(2), 184-193. ("These data can thus be interpreted in terms of a progressive need to supplement existing forms of social cohesion with more efficient vocally based

In this sense, a predisposition to cooperate with those who share the same cultural background helps induce variation between different groups. This calls for the following question: How could this variation be maintained over a long period of time? Imitating the local population instead of immigrants may be sufficient when there is only a small set of immigrants; however, if they become a large part of the local population, it will be progressively harder to identify the most widespread symbolic markers that indicate whom to imitate and, as a result, the mixing-up between groups would inevitably happen.

Richerson and Boyd argue that this problem has been solved in the course of our ancestors' evolution through a social mechanism: moralistic punishment. Our ancestors were already capable of engaging in reciprocal relationships in which altruistic punishment could solve first-order and second-order free riding. However, altruistic punishment relies on face-to-face relationships and on a psychological trait – memory of past interactions –, which allows for the stability of relatively small communities.

Conversely, moralistic sanctions may be directed against those who do not follow the same beliefs, moral rules and behavioral codes of the majority. It is not important to remember who did what to whom in order to punish a free rider, but only to monitor who follows the symbolically shared behavior of the community. Additionally, moralistic sanctions are not necessarily applied by the individuals who were harmed by someone; they can be applied by third parties and—when societies get much more complex than hunter-gatherer groups—by social institutions. This feature also solves the second order free-riding problem because the costs of pun-

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ones as group sizes increased. At the earliest stage, tone and emotion would be the essential components of vocalization; information content would not necessarily be important. The function of this type of enhanced vocalization would be vocal grooming, an expression of mutual interest and commitment that could be simultaneously shared with more than one individual. In fact, this process is already observable at a rudimentary level in extant primates. Richman . . . has pointed out that gelada vocalization has a number of features that were once considered distinctive features of human speech: fricatives, plosives, and nasals, labials, dentals and velars, as well as rhythmic, melodic, and conversational properties involving highly synchronized bouts with intense emotional overtones. It may be no coincidence that geladas live in the largest naturally occurring groups of any non-human primate (mean group size 115 animals). These vocal properties, which converge so uncannily on human speech, appear to supplement grooming as a mechanism for social bonding. Although geladas cannot be said to have evolved language, they may provide a model for the earliest stages in its development.").

ishment are spread across the entire population and becomes greatly reduced for each altruistic individual when compared with the benefits of cooperation in large-scale societies.<sup>246</sup>

Whereas selective imitation and symbolic marking pave the way for cultural variation between different groups, moralistic punishment maintains it over time. By punishing individuals who adopt different memes, it does not allow between-group cultural traits to be mixed-up, which assures that group-selection is stronger than within-group selection.

However, there is a side effect to this solution. Although moralistic punishment is a plausible mechanism to maintain large-scale cooperation, it does not only maintain group-beneficial memes, but can also stabilize any type of cultural trait. There are customary sanctions for those who rob or commit murder, but also for those who do not follow useless rules, such as dress codes or etiquette. Is the stabilization of cooperation in large groups also just a side effect of moralistic punishment? The answer to this question demands an understanding of both cultural evolution and of our moral cognition.

As far as the story goes, our capacity to cooperate in large-scale societies relies on the capacity of faithful and selective imitation that led to symbolic marked societies. Thus far, we have focused only on two of the necessary conditions for characterizing a system as evolutionary: inheritance and variation. There is also a need that variants relate to differential fitness. Different replicators must affect the behavior of their carriers in such way that they improve or decrease the odds of transmitting those memes to their heirs. A genetic system is evolutionary because genes cause their carriers to adopt different behaviors. Because some behaviors are adaptive, the genes related to them increase their odds of being transmitted to the next generation. The same occurs with memes. Cultural variants which increase the adaptability of the person who adopts them to the challenges posed by their natural, social and cultural environments also increase the odds of these behaviors being transmitted to others.

By now, the theoretical necessity of taking multiple levels of evolutionary systems into account must be clear. A cultural trait that negatively affects the biological fitness of their carrier cannot spread through the entire population because either the population will become extinct or it will abandon that meme before that happens. Imagine a population that consists 100% of Catholic priests and nuns who are fully committed to their

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246 See Richerson, P. J. and Boyd, R. (2008). *Not by Genes Alone: how Culture Transformed Human Evolution*. p. 200.

faith and their vows of chastity. Assuming there is no immigration to this community, it will be doomed to extinction unless they refrain from their commitment of following Catholic rules about sexual intercourse between clerics. In this case, cultural evolution is not biologically adaptive.

Conversely, groups that adopt fitness-enhancing memes would be more successful in spreading these memes and their members' genes than other groups who did not do the same. Competition between groups might lead to this scenario. Not surprisingly, the ethnographic and archaeological data indicate that warfare and competition over natural resources are common in contemporary foraging and hunter-gatherer societies. In war, memes that promoted more cooperative groups could lead to an important advantage over groups whose members were selfish and unable to sacrifice themselves for the sake of the group. Of course, development is not only about cooperation; cultural traits such as better weaponry and better strategies would also matter. However, considering a *ceteris paribus* scenario, larger groups typically do better in conflict with smaller groups. And larger groups can only emerge if they can deal efficiently with first and second order free-ridings—in other words, if they can sustain large-scale cooperation.

Of course, this would result in group selection. There is variation between groups (caused by selective imitation associated with symbolic markers), cultural inheritance (the transmission of cultural variants from one generation to the next) and differential fitness (different memes affecting the odds of survival and reproduction of the group). In this sense, the evolution of cooperation in large-scale societies is not just a side effect of moralistic punishment, but a bio-cultural adaptation to an evolutionary problem posed in the Pleistocene to our ancestors. The "cultural" side of this adaptation refers to group-cultural fitness because it increases the odds that the frequency of that group's memes rises over time. Its "biological" side refers to the coevolution between our innate psychology and culture.

So far, I have highlighted the cultural aspects of this equation. Culture evolved as an adaptation to cooperation problems posed by our ancestors, who had large brains and could cope with progressively larger societies. This imposed a selective pressure not only for even larger brains but also for cultural solutions to selective problems. Culture became an inheritance system of its own—an autopoietic system that refers only to its own elements in order to reproduce itself and maintain its stability, which indicates that even more complex brains had to evolve to address the new cultural environment. These brains should be not only capable of monitoring the behavior of other individuals but also of imitating the most common

behaviors in a given population. In addition, these brains should be able to engage in relationships with symbolic markers, and to use these markers as a reliable source of information to enhance cooperation and to punish those who do not conform to them.

#### 2.2.3.2. The Moral Grammar Wired in the Normative Mind

Engaging in such challenging tasks demands a sophisticated brain. A "blank slate" brain, with no innate information, might not be suited for such tasks. Thus, Leda Cosmides and John Tooby have criticized what they consider a generalized assumption made by social scientists – the Standard Social Science Model.<sup>247</sup> This model assumes that the human mind consists of general-purpose and content-independent learning and reasoning mechanisms, i.e., a blank slate that is incapable of responding asymmetrically to different types of input. However, there is evidence that our mind relies on different mechanisms to accommodate diverse types of input.<sup>248</sup> Although there is controversy about the nature of these mechanisms, there is little or no doubt about the fact that our mind has engraved within it innate information that helps processing specific inputs from different domains (visual cues, social relations, and interpretations about the physical and biological world, among others).

It is important to clarify the sense in which I am using the term 'innate'. First of all, it does not entail that the feature to which it is related is fully determined by the genes of a being or that it remains unchanged during its life. Some innate features can only come into existence through ontogeny, although they are genetically specified. The metamorphosis of a butterfly might be a good example to illustrate this. All the four stages of its life cycle (egg, caterpillar, pupa and butterfly) are innately encoded in the insect's genes from the beginning, but it does not mean that the insect remains unchanged. Every stage unfolds within the ontogeny of a particular insect.<sup>249</sup> Second, many innate skills and features can only emerge within an adequate environment. Michael Tomasello, for instance, suggests that,

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247 See Barkow, J. H., Cosmides, L. and Tooby, J. (Eds.). (1992). *The Adapted Mind*. pp. 23-24.

248 See Fodor, J. A. (1983). *The Modularity of Mind*. Cambridge (MA): MIT Press. p. 41.

249 See Godfrey-Smith, P. R. (2009). Darwinian Populations and Natural Selection. p. 106.

although based on innate cognitive features of our minds, human linguistics skills can only develop in specific social environments.<sup>250</sup> Research by Michael Owren and Michael Goldstein also suggest that although language acquisition is innate, it can only be fully developed during ontogeny. According to them, "while the rapid pace of speech ontogeny can suggest innateness, the learning required for becoming a fully competent speaker of a language extends well into middle childhood or beyond."<sup>251</sup> As a result, innateness does not entail inevitability insofar as much depends on how a being relates to its (social or natural) environment.

Noam Chomsky's theory of language acquisition may be the best example of how this mechanism might work. According to Chomsky, a blank slate brain would not be able to learn a new language from scratch if it did not have enough innate information about which aspects of the language it should focus on to extract its syntactic structure and apply it to other linguistic stimuli. This argument, known as the poverty of stimulus (hereinafter "POS"), aims to explain how very young children can learn language and be so competent with respect to its use because they are exposed to limited positive data from which they could extract the structure of a particular language. Because the external stimulus is not enough to explain our competence to engage in linguistic learning, it is assumed that our mind has innate information about how it should organize the linguistic inputs it receives into a universal grammar based on universal principles of language. Noam Chomsky formulates the POS argument in these terms:

"[...] a single language can provide strong evidence for conclusions regarding universal grammar. This becomes quite apparent when we consider again the problem of language acquisition. The child must acquire a generative grammar of his language on the basis of a fairly restricted amount of evidence. To account for this achievement, we must postulate a sufficiently rich internal structure – a sufficiently restricted theory of universal grammar that constitutes his contribution to language acquisition."<sup>252</sup>

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250 See Tomasello, M. (2014). *A Natural History of Human Thinking* (Kindle ed.). Cambridge (MA): Harvard University Press. p. 146.

251 See Owren, M. J. and Goldstein, M. H. (2008). Scaffolds for Babbling: Innateness and Learning in the Emergence of Contextually Flexible Vocal Production in Human Infants In Oller and Griebel (Eds.). Cambridge (MA): The MIT Press. p. 186.

252 In Chomsky, N. (2012). Poverty of Stimulus: Unfinished Business. *Studies in Chinese Linguistics*, 33, 3-16.

The universal grammar, in Chomsky's definition, is "the study of the conditions that might be met by the grammars of all human languages."<sup>253</sup> This statement can be understood in at least two senses. First, the universal grammar can be conceived of as the underlying logical structure that constrains every possible language. Although sometimes Chomsky might appear to sustain such a formalist view, he develops a second approach, linked to an innatist hypothesis, according to which the universal grammar is hard-wired in the architecture of the human mind, selected as a result of evolution.<sup>254</sup>

According to Chomsky and Steven Pinker, this grammar is based on a distinction between principles and parameters.<sup>255</sup> Principles are a finite set of fundamental features valid for all possible natural languages, and parameters are a finite set of binary instructions that determine how the principles are structured in a particular language. For instance, one universal principle might be that a sentence must have a subject; a specific language could parameterize this principle by locking in the subject at the beginning of the sentence, while another language could place it at the end of the sentence. Alternatively, one language might admit a hidden subject, whereas another does not. Parameters work like binary switches that set how a particular principle functions in a given language.

The universal grammar hypothesis has been subjected to some criticism, especially on the grounds that some languages present features that challenge features that were once thought to be universal. Probably the most well-known objection is advanced by Daniel L. Everett based on his studies about Pirahã, a language spoken by natives of the Brazilian Amazon. According to Everett, Pirahã morphosyntax display specific properties not found in any other known language. This would be evidence that "some of the components of so-called core grammar are subject to cultural constraints, something that is predicted not to occur by the universal-grammar model."<sup>256</sup> Nevins et al., however, criticize Everett by showing that the morphosyntactic features held as unique of Pirahã are shared with other languages and, thus, do not support his claim.<sup>257</sup> In addition, it should be

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253 In Chomsky, N. (2012). *Poverty of Stimulus: Unfinished Business*. p. 112.

254 See Chomsky, N. (2012). *Poverty of Stimulus: Unfinished Business*. p. 85.

255 See Pinker, S. (2010). *The Language Instinct*. New York: Penguin Books.

256 See Everett, D. L. (1987). Pirahã Clitic Doubling. *Natural Language Linguistic Theory*, 5, 245-276; Everett, D. L. (2005). Cultural Constraints on Grammar and Cognition in Pirahã. *Current Anthropology*, 46, 621-646.

257 See Nevins, A., Pesetsky, D. and Rodrigues, C. (2009). Pirahã Exceptionality: a Reassessment. *Language*, 2, 355-404.

acknowledged that even if some features of the universal grammar are to be shown as not universal, or particular to specific languages, they do not pose an argument against Chomsky's hypothesis, since many features have been shown to be structurally universal.<sup>258</sup>

The universal grammar argument is a powerful framework for linguistic studies because it can account both for the particular features of the known languages and for the ubiquitous features that characterize them. Portuguese, Japanese and English are very different languages, but they nonetheless display features that can be posited as linguistic universals.<sup>259</sup>

A similar contention might be made for the normative domain. Although John Rawls has not explored this insight more deeply, he recognizes that moral competence is analogous to linguistic competence. By explicitly citing Chomsky's theory of language acquisition, he acknowledges that our ability to engage in moral reasoning cannot be explained solely by means of the assumption that we learn moral principles from our everyday experience. We can make sense of all the moral data we receive in our daily interactions because we have an innate sense of fairness.<sup>260</sup>

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258 In this sense, I follow the linguist Jonathan Bobaljik's conclusion: "On the basis of a large, crosslinguistic survey (just over 300 languages), I argue that there are nevertheless strikingly robust patterns in this domain, robust enough to be solid contenders for the status of linguistic universals. (...) The striking patterns of regularity in what otherwise appears to be the most irregular of linguistic domains provide compelling evidence for Universal Grammar (UG)." See Bobaljik, J. D. (2012). *Universals in Comparative Morphology*. Cambridge (MA): The MIT Press. p. 1.

259 See Bobaljik, J. D. (2012). *Universals in Comparative Morphology*. pp. 22-24.

260 See Rawls, J. (1999). *A Theory of Justice*. pp. 41-42 ("A useful comparison here is with the problem of describing the sense of grammaticalness that we have for the sentences of our native language. In this case, the aim is to characterize the ability to recognize well-formed sentences by formulating clearly expressed principles which make the same discriminations as the native speaker. This undertaking is known to require theoretical constructions that far outrun the ad hoc precepts of our explicit grammatical knowledge. A similar situation presumably holds in moral theory. There is no reason to assume that our sense of justice can be adequately characterized by familiar common sense precepts, or derived from the more obvious learning principles. A correct account of moral capacities will certainly involve principles and theoretical constructions which go much beyond the norms and standards cited in everyday life; it may eventually require fairly sophisticated mathematics as well. Thus the idea of the original position and of an agreement on principles there does not seem too complicated or unnecessary. Indeed, these notions are rather simple and can serve only as a beginning."). In another passage, Rawls states that it is reasonable to assume that natural selection would induce the evolution of an innate set of emotions,



Based on Chomsky's account of language and on John Rawls' linguistic analogy, the legal scholar John Mikhail elaborated a theory of moral cognition and intuitive jurisprudence. According to Mikhail, untutored adults and even small children are capable of moral reasoning; they are "intuitive lawyers, who are capable of drawing intelligent distinctions between superficially similar cases, although their basis for doing so is often obscure."<sup>261</sup> In fact, recent research has shown that even babies younger than one year of age prefer people who engage in pro-social behaviors than those who engage in antisocial behaviors<sup>262</sup> and that children between seven and eight years old are prone to egalitarian behavior with respect to those who belong to their group.<sup>263</sup> Thus, moral theory must address a poverty of moral stimulus issue: even though children in their first year have not been exposed to sufficient perceptual inputs to derive moral principles from them, they nonetheless do engage in moral reasoning.<sup>264</sup>

In parallel with Chomsky's linguistic theory, Mikhail proposes that moral cognition is also based on the distinction between universal principles and local cultural parameters. According to Mikhail, "an adequate moral grammar must include several . . . concepts and principles," which

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sentiments, and psychological principles that would embody a sense of fairness. See also Rawls, J. (1999). *A Theory of Justice*. p. 440. ("In arguing for the greater stability of the principles of justice I have assumed that certain psychological laws are true, or approximately so. I shall not pursue the question of stability beyond this point. We may note however that one might ask how it is that human beings have acquired a nature described by these psychological principles. The theory of evolution would suggest that it is the outcome of natural selection; the capacity for a sense of justice and the moral feelings is an adaptation of mankind into its place in nature. As ethnologists maintain, the behavior patterns of a species, and the psychological mechanisms of their acquisition, are just as much its characteristics as are the distinctive features of its bodily structures; and these patterns of behavior have an evolution exactly as organs and bones do. It seems clear that for members of a species which lives in stable social groups, the ability to comply with fair cooperative arrangements and to develop the sentiments necessary to support them is highly advantageous, especially when individuals have a long life and are dependent on one another. These conditions guarantee innumerable occasions when mutual justice consistently adhered to is beneficial to all parties.").

261 See Mikhail, J. (2011). *Elements of Moral Cognition*. Cambridge (MA): Cambridge University Press. p. 102.

262 See Bloom, P. (2010, May 01). The Moral Life of Babies. *The New York Times*; Bloom, P. (2013). *Just Babies*. New York: Crown Publishers.

263 See Fehr, E., Bernhard, H. and Rockenbach, B. (2008). Egalitarianism in Young Children. *Nature*, 454(7208), 1079-1083.

264 See Mikhail, J. (2011). *Elements of Moral Cognition*. pp. 111-117.

he enumerates as the following: (i) natural liberty, (ii) prohibition of battery and homicide, (iii) self-preservation, (iv) the moral calculus of risk, (v) the rescue principle, and (vi) the principle of the double effect.<sup>265</sup> Mikhail derived these principles from actually observing how people think when they are faced with moral problems.<sup>266</sup> His task is not useless and has yielded many interesting results; taking an evolutionary perspective is useful in conceiving of the features that universal moral grammar principles should embody.

If this account regarding the emergence of cooperation is broadly correct, we should expect the universal moral grammar to be based on principles structured on the evolutionary history of our social psychology. It is not unreasonable to assume that many of these principles would rely on the logic of more ancient evolutionary principles of cooperation that are based on strong emotional ties related to the observance of kin selection and the logic of reciprocal altruism. However, this moral grammar would also be based on more recent evolutionary features linked with symbolic marking, cooperation directed to group members and suspicion of outsiders, and norm-based reasoning. As a result, I assume that our normative mind, equipped with an innate moral grammar, would possess at least the following social tribal instincts: (i) a predisposition to take care of our kin and engage in reciprocal relations; (ii) altruism and empathy; (iii) a psychological bias to punish free riders and to reap social benefits; (iv) egalitarianism; and (v) a bias to identify with symbolic markers. But is there any evidence that we, humans, possess these instincts?

The first set of principles should be based on our primate inheritance. The cooperative behaviors of chimpanzees, bonobos and gorillas may be reasonably explained with reference to kin selection and reciprocal altruism. They take care of their infants, tend to cooperate more and empathize with genetically close members of their groups, and they engage in reciprocal relations.<sup>267</sup> With respect to reciprocation, they are capable of calculating whether it pays better to cooperate or to free ride and to punish freeloaders. These principles are firmly tied to emotional responses that are triggered when they are facing specific social situations and must decide

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265 See Mikhail, J. (2011). *Elements of Moral Cognition*. pp. 132-149.

266 See Mikhail, J. (2011). *Elements of Moral Cognition*. p. 78.

267 See De Waal, F. (2009). *The Age of Empathy: Nature's Lessons for a Kinder Society*. New York: Harmony Books. pp. 314-315.

what to do based on a moral evaluation of a concrete situation. Our minds are likely based on similar emotional and psychological dispositions.<sup>268</sup>

We also have a psychological disposition to be altruists and to feel empathy for others. There is even some evidence that our disposition to empathize is related to our primate inheritance. For example, an experiment devised in the 1960s showed that rhesus monkeys preferred to suffer hunger rather than to secure food by imposing electric shocks on other monkeys – at least a partial evidence that these monkeys display some concern toward the well-being of others.<sup>269</sup> If gene-culture coevolutionary theory is right, human beings would be altruists not only with genetically related persons (kin selection) or with individuals with whom they have successfully interacted in the past (reciprocal altruism), but also with strangers. A psychological experiment devised by Daniel Batson supports this claim. In the experiment, two groups observed a woman (Elaine) receiving electric shocks. Batson requested the first group to write their personal impressions of the experiment in a piece of paper, with the explicit purpose to stimulate an empathetic relationship between them and Elaine. The second group was requested to observe the situation from an objective perspective. Right before the electric shock (which were simulated!), Batson informed to both groups that Elaine was very sensible to shocks due to traumas suffered in her childhood, a circumstance that made the experiment particularly painful, and offered the participants an opportunity to replace her. The conclusions were quite interesting: in the control group, only one in five persons volunteered to replace her, but in the first group, *everyone* offered help. According to Batson, the results can be explained because there is an intimate link between altruism and empathy. When someone feels empathy toward another person, they act as an altruist even if they do not earn anything as a consequence. This is part of our social psychology.<sup>270</sup>

A second group of social tribal instincts is related to the practice of moralistic punishment and a predisposition to reap social rewards. Some

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268 See Hauser, M. D. (2009). *Moral Minds*. New York: HarperCollins. p. 44.

269 See Bekoff, M. and Pierce, J. (2009). *Wild Justice: The Moral Lives of Animals*. Chicago: The University of Chicago Press. p. 29; Masserman, J. H., Wechkin, S. and Terris, W. (1964). "Altruistic" Behavior in Rhesus Monkeys. *The American Journal of Psychiatry*, 121, 584–585.

270 See Batson, D. C. (1987). Prosocial motivation: is it ever truly altruistic? *Advances in experimental social psychology* (Vol. 20). San Diego: Academic Press. pp. 65–2014.

experiments devised by the Austrian economist Ernst Fehr suggested that people have a strong inclination to punish free riders.

In a first experiment,<sup>271</sup> the participants were randomly divided into groups of four persons and each individual received an amount of money (\$10) which could be retained or equally shared among the other group members. The experimenters would add 40% of the shared contributions to the money pool and divide it equally among all players. This structure is endowed with a powerful incentive to free riders: although everyone ends up better when everyone contributes, every player gets an even better result when he does not share his received amount and the other players do so. For instance, if one player retains his \$10 and the other players share their money, the total amount to be shared will be \$ 42,00 (\$30 from the three other players and \$12 added from the experimenters); but the selfish player will get the best results, because he will earn the initial \$10 plus \$10.50 from the division, earning a total of \$22.50, while the altruists would get only \$10.50. This dynamic led to the following results: in the first rounds, the players shared much money to the common pool, but as soon as free riders started to contribute less and less and earn more, contributions declined. By the tenth round, the contributions almost stopped. The participants would prefer to earn less in the game rather than see free riders profiting. In another set of experiments, Fehr added another stage to the original experiment: the players could reduce the payoff of any other player by paying a small amount of his own money. In other words, they could pay to harm others. The result of this small change was that they started to punish free riders, what raised the amount of shared money in the next rounds. Commenting this result, Fehr and Gächter stated that "the punishment of non-cooperators substantially increased the amount that subjects invested in the public good."<sup>272</sup>

Following Richerson and Boyd's hypothesis,<sup>273</sup> the second set of principles has evolved as the result of our distinct evolutionary history and is the product of multi-level selection. These principles consist of tribal instincts that support identification and cooperation in large communities and are related to symbolic marking, indirect reciprocation, cooperation directed to group members and suspicion of outsiders, and norm-based reasoning.

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271 Fehr, E. and Gächter, S. (2001). Altruistic Punishment in Humans. *Nature*, 415, 137-140.

272 Fehr, E. and Gächter, S. (2001). Altruistic Punishment in Humans. p. 138.

273 See Richerson, P. J. and Boyd, R. (2008). Not by Genes Alone: how Culture Transformed Human Evolution. p. 215.

Adherence to these principles requires obedience to group beliefs and values, acquisition of the most diffused memes within a community, and punishment of those who fail to acquiesce to the moral standards.

Although the first set of principles relies on more substantive rules ("take care of your offspring," "punish free-riders," and "return favors to your friends"), the second set of principles is based on more procedural meta-rules, such as "obey the rules of your community," "cooperate with those who share the same symbolic markers as yours," "learn the standards of your group," and so on. In this sense, the tribal instincts prepare our minds to set how the first-order principles should be stabilized by the cultural parameters of a particular community, working exactly as Chomsky's principle-and-parameters would expect to operate.

In addition, it is notable that instincts based on these principles appeared more recently in our evolutionary path, superimposed on our psychology without eliminating those based on reciprocal altruism and kin selection.<sup>274</sup> As a result, it is plausible to assume an intrinsic conflict between these two sets of instincts and the principles they rely on.<sup>275</sup> Sometimes, loyalty to the group may demand that someone expose their own family, or, conversely, concerns about the welfare of their offspring may cause a parent to break the law; this conflict is inherent in our moral psychology because conflicting judgments arise from different cognitive processes that follow contrary deontological assumptions.

Another difference between the functioning of these mechanisms in other primates and in humans is related to the sense of fairness. Great apes, such as gorillas, bonobos and chimpanzees, are strictly hierarchical. Their social system is based on frequent struggles for status and depends on specific dispositions toward the adoption of domination and/or submission cues. However, rank status is not stable; a strong subordinate can always depose the alpha male and replace it in the hierarchy. Although there is an innate disposition to respect rank, there is thus also an innate aversion to being subordinate.<sup>276</sup>

Nevertheless, the social structure of contemporary hunter-gatherer societies, which are considered by anthropologists to be societal models of pre-

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274 See Richerson, P. J. and Boyd, R. (2008). Not by Genes Alone: how Culture Transformed Human Evolution. p. 215.

275 This is why Christopher Boehm states that human nature is ambivalent. See Boehm, C. (1989). Ambivalence and Compromise in Human Nature. *American Anthropologist*, 91(4), 921-939.

276 See Boehm, C. (1999). Hierarchy in the Forest. p. 174.

historic human communities, appears to be intrinsically egalitarian.<sup>277</sup> As Woodburn states, "what is perhaps surprising is that these societies systematically eliminate distinctions—other than those between the sexes—of wealth, of power and of status. There is here no disconnection between wealth, power and status, no tolerance of inequalities in one of these dimensions any more than in the others."<sup>278</sup> This seems to be an anomaly for those who try to explain human sociality from an evolutionary perspective: how could the social structure of our ancestors be so different from that adopted by the great apes? Traditional anthropologic studies typically attribute their egalitarianism to material circumstances, such as food scarcity and the impossibility of storage – due to either technological reasons or social factors, such as nomadic life or social pressure to impose the immediate sharing of food.<sup>279</sup>

The anthropologist Christopher Boehm pursued a different approach to explain this anomaly. According to Boehm, although these causal factors must be taken into account, it is also necessary to consider the role of our social psychology and its evolutionary roots to explain egalitarianism in hunter-gatherer groups. Hunter-gatherer bands and tribes display substantial variation regarding their economic conditions, cultural traits, and ways of life. Some are sedentary and others nomadic; some are involved in small trade networks, whereas others are pastoralists whose lives depend solely on their cattle. In some of these groups, membership is quite stable over time, whereas other bands tolerate migration. After studying 48 hunter-gatherer societies in Africa, Asia, Australia, the Mediterranean/Mideast, North America, New Guinea, Oceania and South America, Boehm found that the only pervasive traits that all of these communities share are egalitarianism and small size.<sup>280</sup>

Boehm's hypothesis holds that our ancestors became egalitarian based on cultural reasons that favored the natural selection of an egalitarian mind. However, how could such psychology evolve on the basis of a hierarchical mind? Boehm's answer to this evolutionary puzzle is quite subtle:

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277 See Kusimba, S. B. (2005). What Is a Hunter-Gatherer? Variation in the Archaeological Record of Eastern and Southern Africa. *Journal of Archaeological Research*, 13(4), 337-366.

278 See Woodburn, J. (1982). Egalitarian Societies. *Man, New Series*, 17(3), 431-451.

279 See Woodburn, J. (1982). Egalitarian Societies. p. 434.

280 See Boehm, C., Barclay, H. B., Dentan, R. K., Dupre, M.-C., Hill, J. D., Kent, S., Knauff, B. M., Otterbein, K. F. and Rayner, S. (1993). Egalitarian Behavior and Reverse Dominance Hierarchy [and Comments and Reply]. *Current Anthropology*, 34(3), 227-254.

egalitarianism cannot be understood in this context as absence of hierarchy, but as reversed hierarchy. We are used to thinking about political hierarchy as a social form of organization where an elite group rules the rest of the society. Egalitarianism among contemporary hunter-gatherers is the opposite – not the absence of hierarchy, but a hierarchical system in which society imposes its political will on its "ruler" through a variety of strategies. An autocratic leader is monitored by public opinion and his authority may be eroded through criticism or ridicule. In extreme cases, harsh sanctions can be applied, such as deposal, ostracism, or even assassination.<sup>281</sup>

The "reversed hierarchy" hypothesis assumes that our ancestors had certain cognitive pre-adaptations that enabled them to reverse the hierarchical behavior that typifies our primate lineage. Among such pre-adaptations, Boehm highlights the importance of political and actuarial intelligence, the skill to communicate, and the ability to live in moral communities.

However, of special importance to the hypothesis is the ability to engage in social hierarchies, knowing when to respect a superior and when to rebel against them and subvert the rank. Even subordinate chimpanzees (who live in a strictly hierarchical society) occasionally rebel against alpha males and disrupt the rank. However, Boehm suggests that a tendency to defy power was stronger in the human lineage than in other primates due to the regular use of weapons. Rebelling against an alpha male is very risky among chimpanzees because the alpha male is usually the stronger individual; thus, the alpha has a strong corporal advantage against its peers.

With weapons (particularly projectile weapons, such as a spear or bow and arrow), weaker individuals can balance the odds against a stronger opponent. In this scenario, being physically stronger is not such an advantage against a skilled adversary who knows how to manage a lethal weapon efficiently. Boehm argues that the regular use of weapons balanced power between stronger and weaker individuals and increased the odds of resistance against a bully leader. This was an important step toward egalitarianism because primate hierarchy substantially relies on differences in physical strength.<sup>282</sup>

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281 See Boehm, C., Barclay, H. B., Dentan, R. K., Dupre, M.-C., Hill, J. D., Kent, S., Knauff, B. M., Otterbein, K. F. and Rayner, S. (1993). *Egalitarian Behavior and Reverse Dominance Hierarchy* [and Comments and Reply]. p. 228.

282 According to Boehm: "How do these insights affect egalitarianism? When killing becomes both easy and rapid, the balance of power between two combatants becomes more a matter of skill in tool use than a matter of canine size, jaw strength, and body size and strength. As will be seen through some vivid ethnographic examples, a strong element of chance is involved in who strikes the first

There is evidence that human ancestors were already capable of handling weapons by 400,000 or 500,000 years BCE,<sup>283</sup> and Boehm assumes that egalitarianism might have been established sometime between 500,000 and 250,000 years BCE. In his *Hierarchy in the Forest*, Boehm was cautious about the genetic implications of egalitarianism.<sup>284</sup> He thought that the balance of power between subordinate individuals and tribal chiefs caused by the diffused use of weapons should have been strong enough to establish egalitarianism socially without requiring any strong genetic change in our moral cognition, although he recognizes the same could have had some impact on other physical aspects of our nature, such as dentition, body size differences between man and women and hair loss on the body.<sup>285</sup>

In his new book, *Moral Origins*, Boehm seems to have changed his mind on this issue. Although he insists egalitarianism appeared first as a political invention backed by weaponry, life in egalitarian communities could have pressed for the social selection of an egalitarian moral cognition over the long term.<sup>286</sup> This revised perspective argues that the emergence of egalitarianism required a human political and social intelligence strong enough to "decisively curb the alphas in their bands."<sup>287</sup> In other words, the evolution of an egalitarian moral cognition demands an already well-developed political and social intelligence.

It is reasonable to believe that egalitarianism is a feature of our innate moral psychology, and not solely the result of a political innovation that spread through cultural transmission. First, it is necessary to consider the fact that egalitarianism is ubiquitous among contemporary hunter-gatherer societies spread all over the world. If it were just a cultural meme not founded on our psychology, we should expect to find many hunter-gather-

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lethal blow. Furthermore, while a larger individual may still have an advantage over a smaller in wielding a weapon such as a spear, he also presents a larger target when it comes to spearing, clubbing, or throwing a projectile." See Boehm, C., Barclay, H. B., Dentan, R. K., Dupre, M.-C., Hill, J. D., Kent, S., Knauff, B. M., Otterbein, K. F. and Rayner, S. (1993). Egalitarian Behavior and Reverse Dominance Hierarchy [and Comments and Reply]. p. 177.

283 See Boehm, C. (2012b). *Moral Origins*. New York: Basic Books. p. 163; Stiner, M. C., Barkai, R. and Gopher, A. (2009). Cooperative hunting and meat sharing 400-200 kya at Qesem Cave, Israel. *Proceedings of the National Academy of Sciences*, 106(32), 13207-13212.

284 See Boehm, C. (1999). *Hierarchy in the Forest*. p. 177.

285 See Boehm, C. (1999). *Hierarchy in the Forest*. p. 181.

286 See Boehm, C. (1999). *Hierarchy in the Forest*. p. 102.

287 See Boehm, C. (1999). *Hierarchy in the Forest*. p. 157.



er tribes that adopted a highly hierarchical structure. Additionally, as Boehm acknowledges, our ancestors have been egalitarians for at least 250,000 years – enough time for natural selection to wire such a trait into our minds. There is neurological,<sup>288</sup> ethnographic and psychological evidence<sup>289</sup> that inequality aversion develops relatively early in childhood and is pervasive in human social experience.

Egalitarianism, however, does not mean that every member of the band is considered an equal. Instead, it means that the hierarchy is inverted. Instead of being a pyramid in which the top is narrow, its base is large and the tribal chief exerts power over his peers, the reversed hierarchy adopts a social structure in which the community actively controls the chief through formal and informal means of monitoring and punishment. If egalitarianism began as a political invention in the Pleistocene, it might have stabilized itself in our mind through the action of natural selection over thousands of years. In time, this principle of our moral grammar may also have neutralized many of our hierarchical instincts, enabling the possibility that, under the right circumstances, we actually may see each other as equals.

Assuming that the scenario built so far is at least reasonable; it is feasible to conceive of the structure of human moral grammar as the expression of principles related to the following mechanisms that embody the solutions to the cooperative dilemmas faced by our ancestors: (i) kin selection; (ii) reciprocal altruism and altruistic punishment of free-riders; (iii) indirect reciprocity based on allegiance and respect to moral norms via symbolic marking, monitoring and moralistic punishment of those who do not acquiesce to them; and (iv) egalitarianism based on reversed hierarchy and on the constant surveillance of those who attempt to impose their will on others. It is also assumed that all these solutions to cooperative dilemmas are nested within our minds as a result of natural selection responding to many different environmental and social problems.

A last body of evidence shows that we, humans, also have an innate predisposition to cooperate with those who share the same symbolic markers with us, reinforcing Richerson & Boyd's thesis. The psychologist Henri

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288 See Dawes, C. T., Loewen, P. J., Schreiber, D., Simmons, A. N., Flagan, T., McElreath, R., Bokemper, S. E., Fowler, J. H. and Paulus, M. P. (2012). Neural Basis of Egalitarian Behavior. *Proceedings of the National Academy of Sciences*, 109(17), 6479-6483.

289 See Fehr, E., Bernhard, H. and Rockenbach, B. (2008). Egalitarianism in Young Children.

Tajfel formulated an experiment in which he showed that people tend to trust more those who are associated with the same symbolic cues as their own, no matter how arbitrary they are. Tajfel showed paintings from Paul Klee and Wassily Kandinsky and asked them to indicate which artist they appreciated more. Subsequently, he divided them arbitrarily in two groups, insinuating that the division had been based on the above-mentioned preference. Then, he gave an amount of money to the participants and asked them to share part of it with the members of one of the groups. Even though they had not had any previous contact with the other participants, a larger amount of money was shared with the members of their own group, suggesting a predisposition to cooperate and trust more those who share the same symbolic markers in uncertainty situations – what confirms the dual inheritance theory predictions.<sup>290</sup>

The anthropologist Francisco Gil-White also presented evidence about how our psychology operates when evaluating symbolic markers. According to him, we tend to use an essentialist cognitive approach to evaluate symbolic tokens, similar to how we evaluate animal or plant species. When evaluating the members of a same species, people tend to assign properties which are transmitted from parent to offspring.<sup>291</sup> In one of his experiments, developed within a population of Kazakhs and Mongols, he showed that both reasoned in an essentialist fashion. For instance, when asked about the nationality of a son of a Mongol father raised in a Kazakh community, both would say that the child was a Mongol. This happened, according to him, because we have an innate psychological predisposition to reason according to natural kinds: his hypothesis was based on the idea that "human cognition is innately designed for intuitive processing of ethnicities as natural living kinds."<sup>292</sup> Individuals classify other persons in regard to essential properties, dividing them according to salient cultural labels.

There is also much evidence concerning the neurological bases of moral foundations, what gives some support to the thesis of an innate moral

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290 See Richerson, P. J. and Boyd, R. (2008). Not by Genes Alone: how Culture Transformed Human Evolution. p. 222; Tajfel, H. (1970). Experiments in Intergroup Discrimination. *Scientific American*, 223(5), 96-102; Tajfel, H. and Billie, M. (1974). Familiarity and categorization in intergroup behavior. *Journal of Experimental Social Psychology*, 10(2), 159-170.

291 Gil-White, F. J. (2001). Are Ethnic Groups Biological "Species" to the Human Brain? Essentialism in Our Cognition of Some Social Categories. *Current Anthropology*, 42(4), 515-553.

292 In Gil-White, F. J. (2001). Are Ethnic Groups Biological "Species" to the Human Brain? Essentialism in Our Cognition of Some Social Categories. p. 26.

grammar. The psychologists Jorge Moll, Joshua Greene and Jonathan Haidt, for instance, summarized research correlating brain regions especially dedicated to social behavior – in particular "the acquisition of social knowledge and dispositions towards normal social behavior"<sup>293</sup>, highlighting the role of the ventromedial and prefrontal cortex, the amygdala, the anterior cingulate cortex, and other brain structures, in supporting normal moral reasoning.<sup>294</sup> Research has shown how moral judgments can be affected by magnetic fields,<sup>295</sup> that we can preview criminal recidivism accurately by studying the level of activity in the anterior cingulate (a brain region associated to impulse control),<sup>296</sup> and that emotions and reason are intertwined in the process of moral reasoning.<sup>297</sup>

All this provides support for the moral grammar hypothesis. John Mikhail's approach regarding moral grammar should be understood as a psychological attempt to devise the specific principles that structure the logic of the mechanisms described above. The principle of natural liberty, which is described as a libertarian principle<sup>298</sup>, states that an individual should be free to decide whether to act (or not) unless a specific course of

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293 In Greene, J. D. and Haidt, J. (2002). How (and Where) does Moral Judgment Work? *Trends In Cognitive Sciences*, 6(12), 517-523.

294 See also Moll, J. and de Oliveira-Souza, R. (2007). Moral Judgments, Emotions and the Utilitarian Brain; Zahn, R., Moll, J., Krueger, F., Huey, E. D., Garrido, G. and Grafman, J. (2007). Social concepts are represented in the superior anterior temporal cortex. *Proceedings of the National Academy of Sciences of the United States of America*, 104, 6430-6435; Moll, J., de Oliveira-Souza, R. and Zahn, R. (2008). The Neural Basis of Moral Cognition: Sentiments, Concepts, and Values. *Annals of the New York Academy of Sciences*, 1124(1), 161-180. Manuela Fumagalli and Alberto Priori offer an excellent review of contemporary research in Fumagalli, M. and Priori, A. (2012). Functional and Clinical Neuroanatomy of Morality. *Brain*, 135(Pt 7), 2006–2021.

295 Young, L., Camprodon, J. A., Hauser, M., Pascual-Leone, A. and Saxe, R. (2010). Disruption of the right temporoparietal junction with transcranial magnetic stimulation reduces the role of beliefs in moral judgments. *Proceedings of the National Academy of Sciences*.

296 Aharoni, E., Vincent, G. M., Harenski, C. L., Calhoun, V. D., Sinnott-Armstrong, W., Gazzaniga, M. S. and Kiehl, K. A. (2013). Neuroprediction of Future Rearrest. *Proceedings of the National Academy of Sciences of the United States of America*, 110, 6223-6228.

297 Jeurissen, D., Sack, A. T., Russ, A. R. B. E. and Pascual-Leone, A. (2014). TMS affects moral judgment, showing the role of DLPFC and TPJ in cognitive and emotional processing. *Frontiers in Neuroscience*, 8(18), 1.

298 See Mikhail, J. (2011). Elements of Moral Cognition. p. 133. John Mikhail's libertarian principle relates to individual autonomy, not a full embracement of a libertarian moral philosophy.

action is forbidden or obligatory. It is reasonable to assume that this principle embodies the logic of egalitarianism, of indirect reciprocity and of symbolic marking. It holds that no one [an egalitarian assumption] should be obligated to act against their will unless their action violates a moral standard held as mandatory by their community (a moral norm adopted by the community as part of its identity, a feature of symbolic marking that, unless heeded, leads to moralistic punishment, as predicted by indirect reciprocity). In the same sense, the other principles devised by John Mikhail should also be read as innate rules selected as proximate psychological causes of evolutionary responses to social dilemmas.

#### 2.2.4. Multilevel Selection Foundations of Human Normative Behavior and Cooperation in Large-Scale Societies

These sophisticated features of the human mind enabled the possibility of life in larger communities rather than those that might have been otherwise sustained in the Pleistocene. The anthropologist Pierre Clastres, for instance, reports that some Tupi, Tupinamba and Guarani villages might have supported, on average, more than 400 natives.<sup>299</sup> However, even if these villages seem huge when compared with the social world of chimpanzees and of our hominin ancestors, they are extremely small when we consider the size of ancient cities and civilizations and of contemporary societies, which are relatively stable societies consisting of millions of individuals.

How could sophisticated societies be built upon those psychological constraints? In other words, how could the human anomaly be explained? Peter Richerson and Robert Boyd present this puzzle in the following manner: "How does cultural evolution engineer ancient Rome or modern Los Angeles starting with human raw material originally designed for societies, at most, on the scale of the cattle camps of the southern Sudan?"<sup>300</sup>

Larger societies such as those displayed by ancient civilizations could not have evolved in the Pleistocene. The climatic constraints of that geological era were hostile to the development of agriculture and foraging societies could not sustain large populations because of insufficient food pro-

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299 See Clastres, P. (1989). *Society Against the State* (Hurley, Santiago and Stein, Trans.). New York: Zone Books. p. 87.

300 See Richerson, P. J. and Boyd, R. (2008). *Not by Genes Alone: how Culture Transformed Human Evolution*. p. 229.

duction.<sup>301</sup> However, in the Holocene, the geological era of the last 11,600 years, the relative climatic stability made agriculture almost inevitable – in such a way that it was independently invented in at least ten occasions in different regions of the world.

Increased food production as a result of the invention of agriculture allowed larger societies to become sustainable. The evolution of sizeable societies led to an evolutionary (cultural) race between increasingly large groups, which led to the invention and stabilization of many cultural adaptations. Early large groups had an obvious advantage over smaller groups because they could assemble larger armies, and, in technologically similar confrontations, larger typically means mightier. Later, the first agricultural societies likely dominated smaller hunter-gatherer groups and replaced them. In the second stage, the confrontation between larger agricultural societies led to the selection of those communities that were structured more efficiently based on division of labor, the evolution of certain institutions, the rise of hierarchical differences among social groups, and more productive economies that allowed for some economies of scale.<sup>302</sup>

However, how could the human mind address such large societies? Richerson & Boyd propose an elegant solution to this puzzle: large-scale societies were organized in such a way that they could simultaneously emulate small ancient foraging groups and allow for hierarchical differences, obedience to superiors and efficient labor division.<sup>303</sup> Societies that might have achieved the institutional means to stabilize the conflict between social or-

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301 See Richerson, P. J., Boyd, R. and Bettinger, R. L. (2001). Was Agriculture Impossible during the Pleistocene but Mandatory during the Holocene? A Climate Change Hypothesis. *American Antiquity*, 66(3), 387-411.

302 See Richerson, P. J. and Boyd, R. (2008). Not by Genes Alone: how Culture Transformed Human Evolution. p. 230.

303 According to Peter Richerson & Robert Boyd: "If we are correct, the institutions that foster hierarchy, strong leadership, inegalitarian social relations, and an extensive division of labor in modern societies are built on top of a social "grammar" originally adapted to life in tribal societies. To function, humans construct a social world that resembles the one in which our social instincts evolved. At the same time, a large-scale society cannot function unless people are able to behave in ways that are quite different from what they would be in small-scale tribal societies. Labor must be finely divided. Discipline is important, and leaders must have formal power to command obedience. Large societies require routine, peaceful interactions between unrelated strangers. These requirements necessarily conflict with ancient and tribal social instincts, and thus generate emotional conflict, social disruption, and inefficiency." In Richerson, P. J. and Boyd, R. (2008). Not by Genes Alone: how Culture Transformed Human Evolution. p. 230.

ganization and human psychology by using our moral grammar as a foundation for their social structures would have substantial advantages in competition with societies whose institutions were in strict conflict with our innate moral grammar.

In this sense, our moral psychology is a necessary foundation of functional social institutions. However, this statement should not be taken naively; many social structures may be in real conflict with our inner moral psychology. The principles of our moral grammar are egalitarian, but history shows that we have lived (and unfortunately still live) amidst many hierarchical societies in which inequality is pervasive. Thus, the relationship of adequacy between institutions and our moral psychology is quite imperfect: "Our social institutions should resemble a well-broken-in pair of badly fitting boots. We can walk quite a way in the institutions of complex societies, but at least some segments of society hurt for the effort."<sup>304</sup>

As a solution to this conflict, gene-culture coevolution theorists propose three mechanisms that might function as "workarounds" to stabilize institutions that are in conflict with our innate nature: (i) command backed up by force, (ii) legitimacy through symbolic-based solidarity, and (iii) segmented hierarchies.

These elements are well known to legal theorists. First of all, *command backed up by force*, or institutionalized coercion, is a societal solution built on our innate tendency to apply moralistic punishment. In prehistoric hunter-gatherer societies, every individual would be entitled to apply moral sanctions on free riders and nonconformists and, in extreme cases, the whole community could be assigned the task.<sup>305</sup> However, in more complex societies, such as the large empires of antiquity, with inhabitants numbering in the millions,<sup>306</sup> the power to apply sanctions had to be concentrated in social institutions suited to the job, as a result of specialized processes that enabled the emergence of more efficient societies.<sup>307</sup> Institu-

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304 See Richerson, P. J. and Boyd, R. (2008). *Not by Genes Alone: how Culture Transformed Human Evolution*. p. 231.

305 See Boehm, C. (1999). *Hierarchy in the Forest*. p. 172.

306 The Roman Empire, for instance, had a population of at least 60 million people in the 2nd century CE. The entire Greek population was approximately 5 million in the 4th century BCE. Later, in the 13th century, the Mongol empire had a population of more than 100 million. See Craughwell, T. J. (2010). *The Rise and Fall of the Second Largest Empire in History*. Beverly (MA): Fair Winds. p. 9.

307 See Parsons, T. (1982). *Talcott Parsons on Institutions and Social Evolution*. Chicago: University of Chicago Press. p. 171.

tions powerful enough to monitor and apply sanctions to punish nonconformists typically are accessible to classes and roles that can subvert this power for their own benefit, leading to institutional free riding over the subordinate classes of individuals, such as merchants, craftsmen, and slaves.

Richerson and Boyd suggest that this problem might be solved through social institutions that could "watch the watchmen."<sup>308</sup> Although they do not explore this theme in more detail, this institutional framework might lead to an equilibrium between rulers and those who are ruled. This type of institutional arrangement is insinuated in early political philosophy. In his *Politics*, Aristotle argued that a city-state should be organized in such a way that rulers could not use power for their own benefit but only in view of the common good.<sup>309</sup> Nevertheless, such an institutional equilibrium has rarely been observed in the course of human history. Typically, the elites use their power and the military for the explicit purpose of benefiting themselves and imposing their authority over others. With enough military support, it is possible to control nonconformist subordinates through institutional punishment.

This type of militaristic control comes at a cost. The anthropobiological hypothesis discussed thus far assumes that individuals have a strong egalitarian disposition, which leads them not to easily accept subordination. When human history is taken into account, this does not seem an obvious consideration; academic history typically considers a period of time that

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308 However, institutionalized coercion creates roles, classes, and subcultures with the power to turn coercion to their own narrow advantage. Social institutions of some sort must police the police so that they will act in the larger interest. Such policing is never perfect and, in the worst cases, can be very poor. The fact that elites always advantage themselves shows that narrow interests, rooted in individual selfishness, kinship, and, often, the tribal solidarity of the elite, exert their predictable influence.

See Richerson, P. J. and Boyd, R. (2008). *Not by Genes Alone: how Culture Transformed Human Evolution*. p. 231.

309 His six-fold classification of constitutional forms is a great example of his reasoning with respect to this issue. The government might be based on one ruler, on a few rulers, or on a multitude of rulers. These kinds of government have a correct form and a deviant form, depending on how the rulers govern their subjects. If the ruler(s) pursue the common good, the government is a correct one – a Kingship, an Aristocracy, or a Polity. However, if it is a corrupt government whose power is used to benefit only a particular group, the constitution becomes corrupted – which would happen in a Tyranny, an Oligarchy or in a Democracy. See Aristotle. (1928). *Politics* (Ellis, Trans.). New York: E. P. Dutton & Co. pp. 203-205.



covers less than the last 10,000 years of human sociality. During this period, our species has lived in strictly hierarchical societies, and it is understandably difficult to believe that we have an egalitarian impulse. However, this "hierarchical period" of human history is nothing but a small fraction of *Homo sapiens*' social history. When we take into account the last 200,000 (or maybe even 500,000 years, if Boehm is correct), our species has been egalitarian for more than 95% of its natural history.

Even the history of ancient civilizations shows that we are not so easily coerced into living in authoritarian hierarchies. The Thracian slave Spartacus commanded a revolt of more than 70,000 gladiators and slaves against Roman authority;<sup>310</sup> the Byzantine Empire faced the population-based Nika riots against the Emperor Justinian;<sup>311</sup> plebeians rebelled against the patricians during the Roman Republic;<sup>312</sup> peasants revolted against nobles, abbots and kings during the Middle Ages;<sup>313</sup> and Italian city-states such as Genoa and Venice<sup>314</sup> resisted Papal authority in the Medieval period, as did the English nobility.<sup>315</sup> Although these rebellions did not directly modify the structure of the societies in which they occurred, they show a strong human disposition to resist subordination.

The relative stability of strict hierarchical societies over the last 10,000 years despite an innate disposition to avoid inequity must be explained. The first element, as already stated, is the specialization of the military force controlled by an elite – command backed up by force. However, stable civilizations such as the Roman Republic/Empire, or the Han China, relied on more than just military strength.

The second element that explains this stability is *hierarchical segmentation*. The human mind is innately ready to live in a world of face-to-face interaction, not in a hugely complex hierarchy-based societal system. The

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310 See Green, P. (1961). The First Sicilian Slave War. *Past & Present*, 20(20), 10-29.

311 See Greatrex, G. (1997). The Nika Riot: A Reappraisal. *The Journal of Hellenic Studies*, 117, 60-86.

312 See Runciman, W. G. (1983). Capitalism without Classes: The Case of Classical Rome. *The British Journal of Sociology*, 34(2), 157-181.

313 See Blickle, P. and Catt, C. (1979). Peasant Revolts in the German Empire in the Late Middle Ages. *Social History*, 4, 223-239.

314 See Greif, A. (1994). On the Political Foundations of the Late Medieval Commercial Revolution: Genoa During the Twelfth and Thirteenth Centuries. *The Journal of Economic History*, 54, 271-287; Jones, P. J. (1965). Communes and Despots: The City State in Late-Medieval Italy. *Transactions of the Royal Historical Society, Fifth Series*, 15, 71-96.

315 See Berman, H. J. (1983). *Law and Revolution: The Formation of the Western Legal Tradition*. Cambridge (MA): Harvard University Press. pp. 254-255.



emergence of hierarchies might only be possible in societies that simultaneously respected (i) the psychological need to live in a social world where inequalities must be coped with and (ii) the fact that differences and inequalities exist and sustain the role-differentiation demanded by the social division of labor. Psychological dissonance would destabilize social structures lacking the first element, and societies without role differentiation could not develop enough complexity to survive when confronted with socially stratified societies.

The solution proposed by Richerson and Boyd aims to achieve both aspirations. Their main thesis is that "top-down control is generally exerted through a segmentary hierarchy that is adapted to preserve nearly egalitarian relationships at the face-to-face level."<sup>316</sup> In this sense, sociocultural evolution selected social structures that were built on a nested hierarchy of classes and roles. Each class was organized as an ancient tribe in which each member had an equal status when compared to their own class and whose chiefs would assert their leadership through a negotiated equilibrium with their direct subordinates. The hierarchical chain of command can be organized in such a way that individuals from higher levels interact with lower level leaders. Explicitly authoritarian chiefs attract as much opposition from the upper class as a tribal head might expect to face if they tried to profit from communitarian efforts. Because hierarchy is organized in such a way that each level maintains its own internal egalitarianism – keeping most face-to-face interactions horizontally adjusted – major inequalities are upheld structurally only between different levels of organization. This social arrangement allows for structural inequality and avoids the psychological cost of dissonance.

Societies whose institutional arrangements could best stabilize the social need for strong and centralized power and the psychological demands of egalitarian relationships were more apt both to internally stabilize a highly hierarchical society and to enable the organization of armies that consisted of thousands of warriors. The evolution of these societies likely occurred as a consequence of internal hierarchy-making processes coupled with military warfare, which is a common fact in ancient history that most likely acted as a proxy for natural selection. The most efficient societies that adopted hierarchical societal structures relied on our innate moral sense and adopted an efficient social division of labor that allowed for specialization, better economic productivity and military organization.

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316 See Richerson, P. J. and Boyd, R. (2008). *Not by Genes Alone: how Culture Transformed Human Evolution*. p. 232.

The third element that helps explain the stability of strictly hierarchical societies is *legitimacy through symbolic group-marking*. People accept a subordinate role when they feel that their immediate community is egalitarian, and they can also obey their superiors because of the fear of punishment for violating normative expectations. However, these foundations can be relatively weak if they are the only basis upon which a highly stratified society is settled. If differences are so deeply rooted within the social structure, the sense of being part of a fair and egalitarian community vanishes and cooperation can only be maintained through fear and violence.

However, our minds are also adapted to expect a linguistic and symbolic world in which different sets of values, norms and beliefs are integrated with innate dispositions and unify local parameters with our universal grammar. As discussed above, much of human sociality derives from indirect reciprocity founded on sharing reputations through linguistic communication and on symbolic cues that show that an individual belongs to a certain group. Some of these symbolic markers are central cultural features of particular societies, in the sense that they convey information about how inequities and differences can be explained in such a way that they might be considered understandable, justified and even fair features of the community.

These norms, beliefs and values are spread through the entire social structure via imitation and other forms of cultural transmission, stabilizing principles and parameters that might be seen at first as highly incompatible, such as egalitarian principles and social structures that admit unequal distribution of resources. In a now famous anthropological experiment, Joseph Henrich et al. investigated whether this was the case in actual societies.<sup>317</sup> If our sociality could be explained only through innate moral principles, we should expect the same behavioral standards in similar situations. Conversely, if our behavior could be explained only through cultural parameters, a large amount of diversity should be expected. We should expect to encounter societies of free riders where nothing would be shared, and societies of human angels that shared everything equally. To check if any of these extremes might actually happen, Henrich et al. undertook a large cross-cultural study of how different people behave when playing ultimatum, public good and dictator games. They recruited subjects from fifteen small-scale societies and from a variety of environmental, social and

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317 See Henrich, J., Boyd, R., Bowles, S., Camerer, C., Fehr, E., Gintis, H. and McElreath, R. (2001). In Search of Homo Economicus: Behavioral Experiments in 15 Small-Scale Societies. *The American Economic Review*, 91(2), 73-78.

economic situations, and found that none of these groups displayed a completely altruistic or egoistic behavior, although they did show different patterns of sharing. They stood somewhere in between, as one might predict using the universal moral grammar hypothesis as a theoretical framework. In industrial societies, the mean offer in ultimatum-game is close to 44%, varying from 26% to 58%. In the cross-cultural research, the sample modes varied from 15% to 50% - a wide range, but not that different from contemporary industrial societies.<sup>318</sup>

Additionally, the social psychology literature recognizes a human disposition to rationalize inequalities through ideological explanations. According to System Justification Theory, people tend to believe that their outcomes and social arrangements are fair and legitimate.<sup>319</sup> Members of disadvantaged groups tend to accept their situation by stereotyping themselves as undeserving and accept responsibility and blame for their unfavorable conditions. In this sense, they internalize inequalities as if they occurred as a result of their own dispositions. Conversely, members of advantaged groups rationalize the status quo as being fair and deserved; they are in a favored position as a result of their dispositions.<sup>320</sup>

When observed from the evolutionary perspective favored so far, System Justification Theory makes sense. First, it must be taken into consideration that our egalitarianism is based on a reversal of hierarchies, not on their absence. Life in hierarchical societies is deeply rooted within our moral psychology; egalitarianism based on hierarchical reversal was made possible as a result of power equalization between the chief and the other community members who could oppose to their power. Before egalitarianism had been stabilized within our hominin lineage, our primate ancestors lived in strict hierarchies where lower rank individuals accepted being subordinate. A hypothesis consistent both with this evolutionary account and with System Justification Theory would consider the internalization of social inequality as a necessary means to avoid cognitive dissonance and the psychological costs of not accepting the status quo. Thus, even if humans have a strong bias against inequalities, this bias might be triggered only in

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318 See Henrich, J., Boyd, R., Bowles, S., Camerer, C., Fehr, E., Gintis, H. and McElreath, R. (2001). In Search of Homo Economicus: Behavioral Experiments in 15 Small-Scale Societies.

319 See Jost, J. T. and Hunyady, O. (2003). The Psychology of System Justification and the Palliative Function of Ideology. *European review of social psychology*, 13(1), 111-153.

320 See Jost, J. T. and Hunyady, O. (2003). The Psychology of System Justification and the Palliative Function of Ideology. p. 120.

social situations where subordinate groups have enough power to counter-balance the advantaged groups. Otherwise, our minds rationalize the situation to avoid cognitive dissonance.

Second, System Justification Theory is also compatible with cooperation based on group-identifying symbolic markers and on the segmentation and stratification of social groups. On one hand, the diffusion of legitimizing rules and beliefs through social imitation, which is associated with an innate mind ready for accepting subordination under the right social conditions, leads to the acceptance and rationalization of extreme inequalities. On the other hand, our social psychology is also prepared to address the distinction in-groups/out-groups. Typically, this distinction works as a proxy to differentiate whom to trust (in-group members) and whom not to trust (out-groups). However, when coupled with other psychological dispositions, such as prestige bias (imitate the more successful individuals), the disposition to differentiate in-groups and out-groups might work as a status quo stabilizing force that would lead to the acceptance of a subordinate role whenever its reversal is not socially feasible; and the psychological need to rationalize and justify one's condition through elaborated narratives would lead to accepting a deeply unfair state of affairs in a segmented and highly hierarchical society.<sup>321</sup>

It is important to acknowledge that not only psychologists recognize the role of legitimacy in stabilizing social structures. The sociological tradition has debated this issue for a long time. The French sociologist Émile Durkheim, for instance, differentiated between organic and mechanical forms of solidarity as distinct means through which legitimacy could establish itself in any society. Mechanical solidarity structured cooperation in pre-modern societies based on a shared collective identity and on the dis-

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321 According to Jonathan Haidt: "The human mind is a story processor, not a logic processor. Everyone loves a good story; every culture bathes its children in stories. Among the most important stories we know are stories about ourselves, and these life narratives are McAdams's third level of personality. McAdams's greatest contribution to psychology has been his insistence that psychologists connect their quantitative data (about the two lower levels, which we assess with questionnaires and reaction-time measures) to a more qualitative understanding of the narratives people create to make sense of their lives. These narratives are not necessarily *true* stories – they are simplified and selective reconstructions of the past, often connected to an idealized vision of the future. But even though life narratives are to some degree post hoc fabrications, they still influence other people's behaviors, relationships, and mental health." See Haidt, J. (2012). *The Righteous Mind*. New York: Vintage Books. pp. 4943-4950.

inction between insiders and outsiders.<sup>322</sup> A communicative background in which the collective body constitutes one single moral/sacred community can sustain cooperation among the members of a traditional community.<sup>323</sup> In pre-modern societies, there is no sense in distinguishing between law, morals and religion because those elements had not yet been differentiated. However, whenever social structures began to differentiate into functionally unique cultural systems,<sup>324</sup> legitimacy could no longer be structured on the basis of a shared lifeworld.<sup>325</sup>

Durkheim attempts to reconstruct the basis of the legitimacy of complex societies through the concept of organic solidarity. Unlike mechanic solidarity, organic solidarity maintains a fully integrated society without relying on a socially shared moral blueprint. Organic solidarity is founded on the very interdependence of economic and social roles, each with a specific function in the social structure. As Philippe Besnard<sup>326</sup> states, the proper functioning of organic solidarity requires the interdependent integration of social roles (objective integration) such that there is a system of relations between them and that individuals become conscious and accept this interdependence (subjective integration). In the same fashion, Talcott Parsons also agreed that the social division of labor was required to enable the

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322 See Tiryakian, E. A. (2008). Durkheim, solidarity, and September 11. In Smith (Ed.), *The Cambridge Companion to Durkheim* (pp. 305-321). Cambridge (MA): Cambridge University Press. pp. 305-321.

323 See Habermas, J. (1996). Between Facts and Norms. p. 26.

324 The functionalist sociological theory advanced by the German sociologist Niklas Luhmann adopts the term 'social system' instead of 'cultural system' as proposed. Although both terms describe the same sociological phenomenon – systems that reproduce themselves on the basis of their own elements – the existence of complex social behavior in other animal species indicates that reserving the term 'social' solely for the description of human social behavior is misguided. As argued above, it is not the fact that *we* are social that is unique to our species but the fact that we live within a cultural background that evolves through the diffusion and differential selection of memes. Many other animal species are also capable of living in social systems in which individuals must deal with a social understanding of others, at least in a rudimentary sense. All cultural systems are social systems, but many social systems are not cultural.

325 See Habermas, J. (1987). *The Theory of Communicative Action: Lifeworld and System - A Critique of Functionalist Reason* (Boston ed.): Beacon Press. pp. 126-135.

326 See Besnard, P. (2008). Durkheim's Squares: Types of Social Pathology and Types of Suicide. In Alexander and Smith (Eds.), *The Cambridge Companion to Durkheim* (pp. 70-79). Cambridge (MA): Cambridge University Press.

emergence of more complex forms of sociality so that individuals internalized the values and norms required to support the social structure.<sup>327</sup>

Evolutionary, psychological and sociological theories approach the problem of explaining the legitimacy of social structures from quite different and complementary perspectives. An evolutionary approach helps us understand the logic of cooperative behavior among different organizational levels. It also leads to comprehending how our social behavior is caused by biases and heuristics that have been incorporated into our minds during our evolutionary past. Psychological theory provides a strong and plausible link between this naturalistic approach and social theory. On the one hand, the interdisciplinary study of social psychology, ethnology and Darwinian anthropology allows for the understanding of the evolutionary history of our behavioral dispositions. On the other hand, the interaction between social psychology and sociology can provide the link between our minds and society by helping to understand the simultaneous interactions of biological, psychological and sociological factors that can be fully observed by a triangulated theory of human behavior.

System Justification Theory and gene-culture coevolutionary theory are marvelous examples of how multiple levels of theoretical explanation can be integrated into a single naturalistic framework. First, such examples are quite compatible with the evolutionary explanations developed so far. Christopher Boehm's theory of the reversed hierarchy can explain the evolution of the ambiguous dispositions of humans toward inequality; as primates, we are intrinsically hierarchical and inequity aversive. System Justification Theory acknowledges this ambiguity in our behavior by positing that we have a psychological need to solve cognitive dissonance in our social life by either constructing an equal state of affairs or by admitting the status quo. This ambivalence is required both by chimpanzee hierarchic societies and by our social communitarian life; otherwise, the painful psychological stress of being a subordinate would destabilize social organization.<sup>328</sup> The evolution of cultural systems exploits this ambivalence to fulfill its own needs – working in such a way that it can follow its own struc-

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327 See Parsons, T. (1982). Talcott Parsons on Institutions and Social Evolution. p. 36.

328 And, indeed, there is evidence that subordinate chimpanzees are stressed due to being constantly vulnerable to aggression from higher-in-the-rank bullies. See Michopoulos, V., Higgins, M., Toufexis, D. and Wilson, M. E. (2012). Social Subordination Produces Distinct Stress-Related Phenotypes in Female Rhesus Monkeys. *Psychoneuroendocrinology*, 37(7), 1071-1085. There is also psychological evidence that humans are subject to rank-related stress. According to Offer-

tural logic while simultaneously building cultural workarounds that exploit innate constraints of our minds and finesse our social instincts.<sup>329</sup> Cultural systems that were unavoidably incompatible with the principles that shape our innate moral psychology would not be stable, as moral philosophers such as John Rawls<sup>330</sup> and Jürgen Habermas<sup>331</sup> recognize.

Second, the theoretical framework proposed thus far also links psychological theory with sociology. Cultural systems that can best integrate our psychological need to solve cognitive dissonance toward inequality in social patterns with their structural need of hierarchic and unfair institutions might be more efficient and would likely be more apt to spread their memes in a memetic population.

In this sense, the psychological perspective can help social theory explain how our psychology can cope with huge inequalities and sustain unfair social structures. On the other hand, social theory explains how unequal patterns of social structures can emerge through the cultural differentiation of social roles and systems. Isolated, these theories cannot lead to the full understanding of the emergence of legitimation. By relying only on social facts, a strictly sociological approach lacks the understanding of the role of psychological forces that cause individuals to acquiesce to social norms and engage in settled cultural realities. Alone, psychological theory

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mann: "Social psychological theory and research in social cognition provide a strong theoretical basis for predictions of differences in perspectives of leaders and subordinates on the issue of subordinate stress. As observers of subordinates, leaders may make fundamental attribution errors (e.g., Fiske & Taylor, 1984) in attributing stress responses to the subordinates themselves rather than to the organizational environment (structural and human) in which the subordinate works. Furthermore, the workings of self-serving biases (e.g., Gioia & Sims, 1985) to promote favorable self-images may inhibit leaders from acknowledging the full impact of their behaviors in producing, maintaining, or failing to take action against the stress experienced by their subordinates. Subordinates, as actors, will likely be far more aware of the impact of the external organizational environment - including the impact of their leaders - on their stress levels. These psychological processes are predicted to be reflected in a consistent pattern of leader underestimation of the relationship of their own behaviors to subordinate stress in comparison with the subordinate perspective." In Offermann, L. R. and Hellmann, P. S. (1996). *Leadership Behavior and Subordinate Stress: a 360 Degrees View. Journal of occupational health psychology*, 1(4), 382-390.

329 See Richerson, P. J. and Boyd, R. (2008). *Not by Genes Alone: how Culture Transformed Human Evolution*. p. 231.

330 See Rawls, J. (1999). *A Theory of Justice*. p. 429.

331 See Habermas, J. (1990). *Moral Consciousness and Communicative Action* (Lenhardt and Nicholsen, Trans.). Cambridge (MA): The MIT Press. p. 16.

cannot provide a full account of how culturally based beliefs and norms hijack features of our psychology in different cultural backgrounds. Only an integrated and evolutionary theoretical framework can account for the reciprocal interactions between genes, minds, institutions and societies.



### 3. Darwinian Populations and Social Theory

Evolution by natural selection occurs in any population to which the principles of variation, heredity and differential fitness can be applied.<sup>332</sup> It is not only biological entities such as genes and biological populations that can be subjected to selection, but also groups such as human communities. Indeed, if we assume that the gene-culture coevolutionary theory is correct, natural selection acting directly on populations of human groups is directly related to the evolution of many psychological traits of our species.

Although I have briefly discussed how group selection can enable the evolution of the social structures needed to sustain cooperation in large-scale societies, based on Richerson and Boyd's account, there is much more to be said on the subject. In this section, I want to explore what elements from social contexts could be subjected to Darwinian selection. In other words, what are the Darwinian populations of social evolution?

#### 3.1. *What is a Darwinian population?*

As philosopher Dan Dennett argues, in his *Darwin's Dangerous Idea*, the notion of natural selection is like a universal acid that "eats through just about every traditional concept, and leaves in its wake a revolutionized world-view, with most of the old landmarks still recognizable, but transformed in fundamental ways."<sup>333</sup> Building on the existing knowledge of almost every discipline, the answers provided by the Darwinian perspective have transformed them from the inside-out.

All it takes is that three elements are present: variation, inheritance and differential fitness. With these elements, natural selection operates like a mathematical algorithm, independently of the material substrate at stake.

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332 See Godfrey-Smith, P. R. (2009). *Darwinian Populations and Natural Selection*. p. 4; Hodgson, G. M. and Knudsen, T. (2010). *Darwin's Conjecture*. p. 31.

333 In Dennett, D. C. (1996a). *Darwin's Dangerous Idea: Evolution and the Meanings of Life*. p. 65.

As Dennett reminds us, there is nothing in Darwinian theory that limits itself to the biological domain.<sup>334</sup>

### 3.1.1. The Parameters of a Darwinian Population in Godfrey-Smith's Perspective

But what exactly is a Darwinian population? According to Peter Godfrey-Smith, a Darwinian population is a collection of entities that can evolve through natural selection. And a Darwinian individual is a member of this particular population.<sup>335</sup> Godfrey-Smith's approach is particularly interesting because he differentiates *paradigm* cases from *marginal* cases of Darwinian populations, allowing for a substantial variation in what can be understood as a Darwinian population, thus enabling particular adaptations of the evolutionary framework to address features of domains other than biology. In this sense, even if social entities are not paradigmatic Darwinian individuals, they might still be considered marginal cases. As a matter of fact, Peter Godfrey-Smith mentions many examples from biology itself that do not fit the paradigmatic concept but, nevertheless, have been considered Darwinian individuals.

Two particular examples related to inheritance might be of interest to social scientists. Inheritance is one of the key elements of Darwinism and, as such, it requires some kind of reproduction. But there are some concep-

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334 In Dennett's own words: "Darwin's ideas about the powers of natural selection can also be lifted out of their home base in biology. Indeed, as we have already noted, Darwin himself had few inklings (and what inklings he had turned out to be wrong) about how the microscopic processes of genetic inheritance were accomplished. Not knowing any of the details about the physical substrate, he could nevertheless discern that if certain conditions were somehow met, certain effects would be wrought. This substrate neutrality has been crucial in permitting the basic Darwinian insights to float like a cork on the waves of subsequent research and controversy, for what has happened since Darwin has a curious flip-flop in it. Darwin, as we noted in the preceding chapter, never hit upon the utterly necessary idea of a gene, but along came Mendel's concept to provide just the right structure for making mathematical sense out of heredity (and solving Darwin's nasty problem of blending inheritance). And then, when DNA was identified as the actual physical vehicle of the genes, it looked at first (and still looks to many participants) as if Mendel's genes could be simply identified as particular hunks of DNA." In Dennett, D. C. (1996a). *Darwin's Dangerous Idea: Evolution and the Meanings of Life*. p. 58.

335 See Godfrey-Smith, P. R. (2009). *Darwinian Populations and Natural Selection*. p. 6.

tual problems related to what exactly reproduction means. There are some unequivocal examples which are, of course, mostly related to sexual reproduction; but nature is full of examples of asexual reproduction, especially in the case of some plants and colonial organisms.<sup>336</sup> As Godfrey-Smith says, some plants can produce new units genetically identical to their 'parent'. *But is this reproduction or mere growth?*

This example is important to social scientists because the concept of social reproduction can lead to many misunderstandings in sociology as well. We could say that many ancient societies 'reproduced' in an analogous way to the aforementioned plant. Whenever the population of a Greek city-state grew more than it could uphold, for instance, its citizens were incentivized to colonize other places, taking the culture and social structure of the 'mother' city with them. Is this reproduction? Is it growth? In the case of modern societies, it is even harder to define. After all, at least at country level, it would sound unusual to say nowadays that a country is 'reproducing' in the sense of replicating its own structures somewhere else, generating an entirely new unit that resembles the old one.

Another example mentioned by Godfrey-Smith, still related to the issue of reproduction, relates to *collective entities*. Can we say that collective entities reproduce, or is it only the low-level entities that constitute them? He mentions the example of a buffalo herd that grows and splits, and asks: "Is that herd-level reproduction, or only buffalo-level reproduction?"<sup>337</sup> Saying that it is only buffalo-level reproduction may seem more obvious, but is that example different from saying that human reproduction is just a matter of cellular replication, and not a matter of replicating the organization of the human being? After all, a human body might be described as a collective entity constituted by cells. Again, this is a useful example for the social sciences, as they usually study phenomena related to collective entities that have a relationship with lower-level entities. Think of individual members of human societies, for instance.

Godfrey-Smith assumes that Darwinian populations are way more complex than the textbook's three principles definition, and may admit many intermediate cases. There are standard *paradigm* populations, and *marginal* cases, and, because of that, he prefers to talk about a *family* of different

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336 See Godfrey-Smith, P. R. (2009). Darwinian Populations and Natural Selection. p. 70.

337 In Godfrey-Smith, P. R. (2009). Darwinian Populations and Natural Selection. p. 70.

kinds of Darwinian processes that only share an essential core of *minimal* features – which he calls *the minimal concept of Darwinian population*.

In this 'minimal concept', a Darwinian population is "a collection of causally connected individual things in which there is variation in character, which leads to differences in reproductive output (differences in how much or how quickly individuals reproduce), and which is inherited to some extent."<sup>338</sup> Any Darwinian population is (i) a collection of causally connected individuals; (ii) these individuals display variation in character; (iii) these variations lead to reproductive differences; and (iv) these differences are inherited.

Besides that, different Darwinian populations can display other properties, which may account for the differences between *paradigmatic* and *marginal* Darwinian cases. On one hand, *paradigmatic* populations are the subset of cases that satisfy beyond any doubt the minimal criteria. These are the cases most often studied by scientists, because they lead to novelty and "give rise to complex and adapted structures."<sup>339</sup> On the other hand, *marginal* Darwinian populations are those that only have a *partial* Darwinian character, for they do not satisfy all the minimal requirements entirely, but only approximately.<sup>340</sup>

Godfrey-Smith proposes that the Darwinian family of populations can be better understood graphically, with the aid of a spatial form of representation in which each dimension stands for the range of meaningful Darwinian features.<sup>341</sup> A particular population would occupy a specific point in that space depending on how its features are graphically represented. The *minimal* criteria would occupy a large proportion of the chart, accounting for the paradigmatic cases and fading into the marginal ones.

The first dimension of this chart would be Heredity (H). Although every evolutionary process is an inheritance system, we need to make a distinc-

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338 Godfrey-Smith, P. R. (2009). Darwinian Populations and Natural Selection. p. 39.

339 In Godfrey-Smith, P. R. (2009). Darwinian Populations and Natural Selection. p. 41.

340 In Godfrey-Smith's words: "At the other end of things, we can also identify a category of *marginal* Darwinian populations. This is not a category of cases within the boundaries of the minimal concept; rather, these are populations that do not clearly satisfy the minimal requirements, but do approximate them. They have a partially Darwinian character." In Godfrey-Smith, P. R. (2009). Darwinian Populations and Natural Selection. p. 41.

341 See Godfrey-Smith, P. R. (2009). Darwinian Populations and Natural Selection. p. 43.

tion between high-fidelity systems and those systems in which inheritance is "very noisy and unreliable."<sup>342</sup> Biological evolution ranks high in this dimension because genes are enormously reliable. On the opposite side, the cultural evolution of traditional societies that rely solely on oral communication is intrinsically limited because the replication of cultural traits depends on the individual memory of its members. The invention of writing gave power to cultural evolution because it strengthened the fidelity of memetic transmission.<sup>343</sup>

Variation (V) is the second dimension of the spatial chart proposed by Godfrey-Smith. Although evolutionary systems depend on the reliable inheritance of particular characteristics, heredity cannot be perfect; the inheritance system must provide some room for variation. Nonetheless, not every variation is qualified to be subject to selection. They must be slight in extent, exploring phenotypic regions close to the current state of the system. Otherwise, a wide range of variations over short periods of time would undermine the possibility of cumulative selection.<sup>344</sup>

A third feature is the degree of *competitive interaction with respect to reproduction* ( $\alpha$ ), a requisite that accounts for the *causal connection* between individuals, one precondition of the minimal concept of Darwinism. Evolutionary change depends on the fact that some variants of the specified population are sorted out and others – the selected ones – prevail. This is the conceptual core of selection. The  $\alpha$  parameter represents the degree of competition binding two populations. When  $\alpha$  is high, the growth of one competing population affects negatively the other. For example, we might think of two populations of bacteria that consume the same resources and share the same environment. If population A grows, it reduces the amount of available resources for population B, thereby affecting its reproductive success. When  $\alpha$  is close to zero, there is no competitive interaction between the considered populations.<sup>345</sup> Paradigmatic Darwinian populations

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342 In Godfrey-Smith, P. R. (2009). *Darwinian Populations and Natural Selection*. p. 44.

343 For a deeper discussion on the subject, see Blackmore, S. (2000). *The Meme Machine*. pp. 205-210. According to Susan Blackmore, writing led to the "externalization of memory," allowing cultural evolution to overcome the "limitations of biological memory." See Blackmore, S. (2000). *The Meme Machine*. p. 98.

344 See Godfrey-Smith, P. R. (2009). *Darwinian Populations and Natural Selection*. p. 47.

345 See Godfrey-Smith, P. R. (2009). *Darwinian Populations and Natural Selection*. p. 52.

are those where  $\alpha$  is 1, which means that there is a direct relationship between the growth of a population and the reproduction of the other.

Another feature of the Darwinian landscape is Fitness and Intrinsic Character (S), which accounts for the "extent to which differences in the reproductive output of a population depend on intrinsic features of the members of the population"<sup>346</sup>. In order to explain this feature, Godfrey-Smith explores a thought-experiment that can be described in the following terms: Assume that we can correctly assign the causes of all births and deaths in a given population. We can determine that some of them occur as a result of *extrinsic* factors related to the environment, like a lightning bolt or a random fire, or due to *intrinsic* factors related to the features displayed by the individuals, such as their strength, speed or intelligence.

When S is low, the survival rate of a specific individual is more closely related to extrinsic factors than to their own qualities. An individual survives because they are lucky, and that is all there is to be said. If a lightning bolt strikes and kills individual A, leaving individual B alive to produce their offspring, no factor other than mere randomness can be held responsible for that result. This is what biologists call evolutionary change caused by drift. Darwinian evolution occurs when S is high, which means that an individual survives and leaves more offspring because they have some specific attribute that is useful in that environmental context. If a lion attacks a herd of deer and a slow deer is caught, the others survived because of their speed, an intrinsic factor. Darwinian populations, such as this one, score high on S.

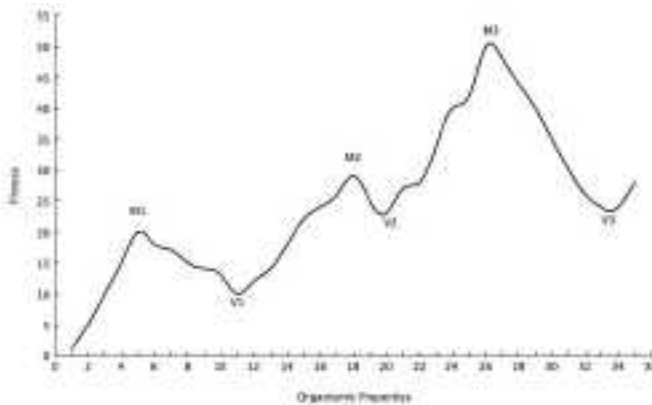
Obviously, extrinsic factors do count in Darwinian evolution, but, in low S cases, all that matters are extrinsic factors. Intrinsic qualities make no difference for reproductive success at all. On the opposite side, in high S cases, the intrinsic features of individuals are deemed responsible for the differential fitness that slowly accumulates and generates adaptive features. The environment, intertwined with the population state, determines which intrinsic features count as an adaptation or not. Physical power, a good mating call or the ability to camouflage may count as a high S case if they are positively related to subsequent survival and reproduction as a result of their effect in the surrounding environment.<sup>347</sup>

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346 See Godfrey-Smith, P. R. (2009). Darwinian Populations and Natural Selection. p. 53.

347 See Godfrey-Smith, P. R. (2009). Darwinian Populations and Natural Selection. p. 54.

A fifth concept discussed by Peter Godfrey-Smith is continuity (C), which refers to the relationship between small changes in phenotype and small changes in fitness.<sup>348</sup> Building on Sewall Wright's metaphor of landscape<sup>349</sup> to represent the relationship between organismic properties and fitness, Godfrey-Smith describes fitness as a function of the features of an organism. In order to facilitate the understanding, we can represent a simple fitness landscape using the following function as an example:



This chart exemplifies a fitness landscape. Fitness varies according to organismic properties, in such way that valleys (Vx) represent areas of low fitness whereas mountains (Mx) account for areas of high fitness. In Darwinian populations, low variation in organismic properties implies a low variation of their fitness, or, in more graphic terms, a *smooth* landscape. On the opposite side, we have a *rugged* landscape when similar properties are associated with a broad variety of fitness values.<sup>350</sup>

The continuity property of a system (C) corresponds to the smoothness of the landscape, a higher C property meaning a smoother fitness landscape. Darwinian populations are usually set in smooth landscapes because they manifest continuity from one state to the other. Since variation occurs in close organismic properties, change will not occur in "leaps" to distant

348 See Godfrey-Smith, P. R. (2009). *Darwinian Populations and Natural Selection*. p. 57.

349 For a criticism to this approach, see Pigliucci, M. and Kaplan, J. (2006). *Making Sense of Evolution*. Chicago: University of Chicago Press.

350 See Godfrey-Smith, P. R. (2009). *Darwinian Populations and Natural Selection*. p. 57.

properties. As a result, in a smooth landscape, variation and inheritance will culminate in a slow process of climbing to the regions around the mountains of the landscape. In a rugged landscape, on the other hand, small variations will not lead to any increase in fitness, as the mountains are so distant that almost no variation can bring a population to climb them. Only random (and highly improbable) situations would lead populations to a fitness mountain in a short evolutionary period.<sup>351</sup>

Paradigm Darwinian processes usually display high values of H, C and S. But Godfrey-Smith acknowledges that even those cases cannot be perfectly at high. For instance, if heredity is exactly 1, it means that the offspring is perfectly like their parents. In this case, however, there can be no variation and, as a result, no evolutionary change.<sup>352</sup>

I would like to highlight an interesting feature of the Darwinian model proposed by the biology philosopher. His perspective is not static: as certain population evolves, it obviously changes the involved organisms, *but it also modifies how the system evolves itself*. In this sense, the evolution of a system brings about new entities that impact the evolutionary dynamics of the whole system, affecting the values of H, V, C and S for the next generations, suppressing one dimension or another, and even de-Darwinizing some parts of the system.<sup>353</sup>

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351 In Godfrey-Smith, P. R. (2009). *Darwinian Populations and Natural Selection*. p. 58.

352 See Godfrey-Smith, P. R. (2009). *Darwinian Populations and Natural Selection*. p. 66.

353 According to Godfrey-Smith: "I will introduce one other heuristic role for the spatial treatment. As a population evolves, it not only changes the organisms that comprise it, but changes how it will evolve in the future. This can be visualized as movement in the space. Such movement is not always self-propelled; sometimes the evolution of one Darwinian population drives another. One example is the evolution of the vertebrate immune system. Here, whole-organism evolution has given rise to a suborganismal Darwinian process that is engineered to adapt effectively to the environment of viruses and bacteria that an organism confronts. Evolution at the whole-organism level has shaped parameters like S and H for the cellular components of the immune system, giving them the properties associated with a powerful Darwinian process. But it is also possible for one population to curtail or suppress another, with respect to its Darwinian properties, to move it away from paradigm status. Germ lines and other features of reproduction in complex organisms act to suppress or "de-Darwinize" the evolutionary activities of key parts of the system. The vertebrate immune system is engineered to perform a powerful evolutionary search, but somatic evolution is generally engineered to fail." In Godfrey-Smith, P. R. (2009). *Darwinian Populations and Natural Selection*. p. 66.



Understanding this argument will prove to be essential to the model of sociocultural evolution I will construct in the next sections. *The evolutionary dynamics produces non-Darwinian entities or, at least, marginal Darwinian cases.* But we need not look into examples from human societies in order to understand this point; Godfrey-Smith's evolutionary model demonstrates how this happens even in strict biological processes, and understanding this point might be an interesting proxy to appreciate the evolution of social and cultural entities.

Godfrey-Smith's purpose is to explain, from a Darwinian perspective, how high-level entities can emerge out of lower-level ones. How can an organ emerge out of cells? Or how can a body emerge out of organs? His major point is that the larger entity is not only 'composed of' the lower entities, but it is an organization in its own right. A human individual is a collection of cells, entities with their own evolutionary history, but a human population might also be a Darwinian population in its own right. How can this happen?

In order to address this problem, Godfrey-Smith links *reproduction* to *individuality*. Reproduction, as I have reviewed, is at the core of Darwinian processes, because there can be no such thing as evolution without Heredity (H). But what exactly is reproduction? This is a far more difficult question. A standard biology textbook description of reproduction would be that it involves the production of new individuals roughly similar to their parents. Also, reproduction is to be distinguished from other concepts, such as growth and the birth of a new individual without the existence of parent beings.<sup>354</sup>

The complication presented by Godfrey-Smith lies in the fact that, even in biology, things are far from this textbook definition. In different organic species, what counts as reproduction may vary a lot and put into question the very nature of the distinctions between reproduction/growth and high-level/low-level entities. And the kind of reproduction seen in the system at stake affects the very evolutionary properties of that system.

Firstly, he mentions as an example *some organisms that reproduce themselves through growth*. "Many organisms (various plants, animals, and fungi) create what look like new individuals by growing them directly from old ones. The new structure may then detach or stay attached."<sup>355</sup> He mentions

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354 See Godfrey-Smith, P. R. (2009). Darwinian Populations and Natural Selection. p. 69.

355 In Godfrey-Smith, P. R. (2009). Darwinian Populations and Natural Selection. p. 71.

the example of apple trees: "Separation can also be imposed; all the 'Red Delicious' apple trees in the world are ramets derived from one apple tree that lived in Iowa."<sup>356</sup> Other examples are "marine invertebrates, such as corals, anemones, and ascidians."<sup>357</sup> Some biologists have argued that these cases should count as mere growth, instead of reproduction, because they only involve the production of new clones.<sup>358</sup>

The second set of problems mentioned by Godfrey-Smith concerning the issue of reproduction concerns the emergence of collective entities. This point is of particular interest to social scientists, because, as it has been argued from Mandeville to Hayek, collective entities are made up of individual parts – an assumption also present in the biological thought. Godfrey-Smith proposes that problems with collective entities emerge out of the relationship between individuality and reproduction and, in order to discuss this point, he focuses on the distinction between colonial forms of organization and symbioses.<sup>359</sup>

On one hand, colonial organisms, such as algae, sponges and corals, are defined as "physically connected groups but without elaborate division of labor, and often with the retention of some capacity to live independently"<sup>360</sup>. Colonies do not have functionally differentiated organs; they are better described as an aggregate of quite independent individuals rather than an individual organism in its own right.

On the other hand, symbioses are not only physically connected groups, but also *functionally integrated* entities. Despite often being members of different biotic kingdoms, they achieve such a level of integration that they can lose their individual capacity of living on their own. The evolution of the eukaryotic cell, a significant step forward in the evolution of life on Earth, is mentioned as "the most widespread symbiosis of all."<sup>361</sup> The reproduction of symbiotic beings can occur separately (such as with lichens,

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356 In Godfrey-Smith, P. R. (2009). *Darwinian Populations and Natural Selection*. p. 71.

357 In Godfrey-Smith, P. R. (2009). *Darwinian Populations and Natural Selection*. p. 71.

358 See Godfrey-Smith, P. R. (2009). *Darwinian Populations and Natural Selection*. p. 72.

359 See Godfrey-Smith, P. R. (2009). *Darwinian Populations and Natural Selection*. p. 73.

360 In Godfrey-Smith, P. R. (2009). *Darwinian Populations and Natural Selection*. p. 73.

361 In Godfrey-Smith, P. R. (2009). *Darwinian Populations and Natural Selection*. p. 74.

where fungi and algae reproduce independently) or, when the integration has reached a high level of entanglement – as it occurs with the eukaryotic cell –, it occurs as if there was only one organism.

A third set of problems refer to what Godfrey-Smith defines as "chimeras and mosaics," which challenge the assumption that individual organisms are "both genetically unique and genetically uniform."<sup>362</sup> An example mentioned by him in relation to the oak tree can show how things can be really exceptional. The development of a new branch in oak trees results from cell division in their apical meristem, which can suffer mutations that are passed on to the successor cells. As a result, despite belonging to the same tree, *the branches of a same old oak tree that have diverged decades or centuries ago may be genetically different from each other.*<sup>363</sup> Another mentioned example is chimerism, which relates to the phenomenon where the reproduced entity displays two sets of genotypes as a result of the fusion between them – as seen in marmosets and may even happen in humans.<sup>364</sup> There is also mosaicism, which involves internal change (such as mutation or adaptation of the immune system, which changes itself to identify and respond to infections).

These problems challenge the textbook definition of reproduction, and Godfrey-Smith seeks to overcome them by proposing a new approach that admits a plurality of reproduction *modes* that can be part of a Darwinian process. According to him, there are three reproductive relationships that could, in principle, generate Darwinian individuals: *collective entities*, *simple reproducers*, and *scaffolded reproducers*.

*Collective entities* are those composed of parts that have within them the capacity to reproduce. Godfrey-Smith mentions cases such as the aforementioned buffalo herd and other social groups, multicellular organisms, not-so-tight symbiotic associations and colonies. In these cases, the collective entity reproduces itself via the reproduction of its low-level compo-

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362 In Godfrey-Smith, P. R. (2009). *Darwinian Populations and Natural Selection*. p. 75.

363 See Godfrey-Smith, P. R. (2009). *Darwinian Populations and Natural Selection*. p. 76.

364 "Chimerism is seen in spectacular form in the marmosets, but it is turning out to be much more common than had been thought. In humans, pregnancy induces a slight degree of chimerism in women that probably lasts for decades (Rinkevich 2004). Sometimes humans are massively chimeric because they are products of two fertilization events whose embryos merge and produce just a single baby." In Godfrey-Smith, P. R. (2009). *Darwinian Populations and Natural Selection*. p. 76.

nents. The herd (and the colonies) produces other herds through its individual members, which produce other members that will be part of the herd, and which, depending on its size, can split and generate another herd. Multicellular organisms (such as ourselves) reproduce themselves through cellular reproduction (the reproduction of somatic cells maintains the organism's autonomy and the reproductive cells generate other collective individuals).

*Simple reproducers* are the elements embedded in collective entities that are able to reproduce. It is worth-noting that some collective entities are built upon other collective entities, but at some level it will be possible to isolate "the lowest-level entities that can reproduce largely (...) using their own machinery"<sup>365</sup>. The paradigmatic example mentioned is a bacterial cell which does not depend on the reproduction of lower-level entities in order to replicate. In this sense, one could roughly say that a human group is a collective entity composed of humans (another collective entity) made up by internal systems, organs (collective entities as well) and cells (simple reproducers).

Godfrey-Smith also introduces a third set of replicating entities, the *scaffolded reproducers*. These entities reproduce themselves as part of the replication of larger units, however producing an evolutionary lineage in their own right. They reproduce themselves, but depending on the host's biological machinery. Viruses and chromosomes are the examples mentioned by the philosopher, which replicate through a cellular machinery that is external to themselves.<sup>366</sup>

In a certain sense, it can be said that Peter Godfrey-Smith abandons the replicator paradigm invoked in the second chapter. A long evolutionary tradition has been discussing the level in which natural selection takes place, and many scholars have argued that only low-level entities can be said to replicate (e.g. Dawkins)<sup>367</sup>. But how do these widely different entities relate to each other? Peter Godfrey-Smith approaches this problem by referring to a huge difficulty in the social science fields that have attempted to apply an evolutionary framework to understand social evolution. As discussed, one way to conceive of social evolution is to understand it as a result of cultural evolution – and culture is conceived of as a set of individ-

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365 In Godfrey-Smith, P. R. (2009). *Darwinian Populations and Natural Selection*. p. 87.

366 In Godfrey-Smith, P. R. (2009). *Darwinian Populations and Natural Selection*. p. 88.

367 See, e.g., Dawkins, R. (2006). *The Selfish Gene*.

ual traits (memes, cultural variants, etc.) transmitted through mechanisms of social learning, especially imitation.<sup>368</sup> In Godfrey-Smith's framework, cultural variants could be understood as scaffolded reproducers, since they need external machinery (*v.g.*, brains, communication among individuals needed to transmit them) in order to reproduce. However, cultural evolution might also involve reproduction in higher levels, such as in the level of social organizations, like businesses, courts or churches, and in even higher levels, such as whole cities, countries and social systems. In Godfrey-Smith's perspective, these entities might be understood as *collective reproducers*.

### 3.1.2. Reproduction and Collective Entities according to Godfrey-Smith

What counts as reproduction for a collective entity? With the purpose of addressing this question, Godfrey-Smith introduces three categories: bottlenecks (B), germ lines (G), and Integration (I).

*Bottlenecks are the degree of division between two generations.*<sup>369</sup> Reproduction involves the production of a new individual (offspring) similar and causally connected to another (parent). One cell produces another, and the bottleneck degree is high in this case because we can easily identify the divide between generations. When a parent dog has some puppies, we can clearly see the differences between one generation and the other.

Bottlenecks are evolutionarily relevant because they force a developmental reboot at each generation. When reproduction occurs, the offspring starts from zero; it has to grow and develop from scratch, what opens an opportunity for mutations to affect the organization of the organism and to transmit new genes to future generations.<sup>370</sup> As a result, bottlenecks are important to produce variations affecting the basic organization of an organism.

The parameter B is high when reproduction strictly divides generations, as it occurs in cellular reproduction or even in human reproduction. When B is low, new individuals can be understood as a mere continuation of

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368 See Richerson, P. J. and Boyd, R. (2008). *Not by Genes Alone: how Culture Transformed Human Evolution*.

369 See Godfrey-Smith, P. R. (2009). *Darwinian Populations and Natural Selection*. p. 91.

370 See Dawkins, R. (1982). *The Extended Phenotype*. Oxford: Oxford University Press; Godfrey-Smith, P. R. (2009). *Darwinian Populations and Natural Selection*. p. 91.

their parents. In nature, this usually happens among some kinds of plants, such as the aspen, which grows out of ramets genetically, being basically clones of their parents. These ramets limit the degree of reorganization the offspring will develop when compared to their parents and, although they have their own organization, they only display a partial reboot of the system's structure.<sup>371</sup> But B can be even lower, as it occurs when the above-mentioned buffalo herd grows and splits; there is no reorganization at all in the collective unit, although there is reproduction.

The second parameter related to reproduction, *germ line* (G), is the degree of reproductive specialization of the parts of a system, or whether it displays a distinction between germ and soma elements. When G is high, the collective entity reproduces itself through specialized elements (germs) that are implicated in the replication of the entire collective structure, while the other elements (soma) are unable to reproduce the system. We, humans, like all other mammals, have specialized cells involved in our reproduction (our gametes) while all other cells are somatic, unable to produce another animal.<sup>372</sup> This is not the only case, though; worker bees are "somatic cells" of a beehive, while the queen stands for its "germ cell." The beehive counts as a collective individual in its own right. On the other hand, sponges have a low G because they do not have this distinction; every individual cell can produce an entire colony.

The third parameter is *integration* (I), which tracks the degree of interdependence displayed within the collective entity. Godfrey-Smith states that integration covers many features, such as "the extent of the division of labor, the mutual dependence (loss of autonomy) of parts, and the maintenance of a boundary between a collective entity and what is outside it."<sup>373</sup> Complex multicellular organisms display a high level of integration, because there is a huge division of labor amongst the various organs performing different functions and a high extent of mutual dependence between each element of the system, while also maintaining a boundary between the organism and its environment.

In order to organize the role of each of these elements in reproduction, Godfrey-Smith affirms that high values of the three parameters entail clear-

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371 See Godfrey-Smith, P. R. (2009). *Darwinian Populations and Natural Selection*. p. 92.

372 See Godfrey-Smith, P. R. (2009). *Darwinian Populations and Natural Selection*. p. 92.

373 In Godfrey-Smith, P. R. (2009). *Darwinian Populations and Natural Selection*. p. 93.

er (paradigm) cases of reproduction, while low values are associated to marginal cases.<sup>374</sup> Systems that display high bottlenecks are closer to reproduction than to mere growth; high germ lines and integration implies that reproduction takes place in the collective level, and not as a result of "low-level reproduction plus organization of the results."<sup>375</sup>

When reproduction occurs at the higher levels, an interesting phenomenon occurs: the *de-Darwinization of the lower-levels*. This result derives from the integration between the Darwinian parameters (H, V, S, C and  $\alpha$ ) and the parameters related to reproduction in collective entities (B, G, and I). In a nutshell, Godfrey-Smith argues that the emergence of collective reproducers as Darwinian Individuals results from the suppression of evolution (de-Darwinization) in their lower-level elements.

Collective reproducers are composed by lower-level reproducers (either other collective reproducers or simple ones). A human group can be a Darwinian population in its own right, composed by human individuals, which on their turn can be seen as a collective reproducer composed of individual reproducers (cells) that also form a particular Darwinian population by themselves. We have, in this example, three analytic levels: the cellular level, the human body and the human group. Each one of these levels is composed of Darwinian populations. However, the evolution of collective reproducers is only viable when the collective level organizes the lower-levels in such a way that their reproduction does not erode evolution in the higher-levels.

Consider the relationship between the cellular level and the human body. As Darwinian individuals, cells reproduce themselves, vary and are selected. In principle, those cells that replicate faster and pass on their own genes to the offspring are more prone to be selected in the Darwinian process. Nonetheless, this might be bad for the collective body they are a part of – as a matter of fact, this is exactly what cancer is, the disorderly reproduction of cells.<sup>376</sup> In order to avoid this, the body must somehow inhibit cellular reproduction, organizing it in order to structure its (the body) own replication.

For this to be feasible, collective replicators must suppress lower-level evolution, blocking subversion from their lower-level components. God-

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374 See Godfrey-Smith, P. R. (2009). Darwinian Populations and Natural Selection. p. 94.

375 In Godfrey-Smith, P. R. (2009). Darwinian Populations and Natural Selection. p. 94.

376 See Axelrod, R. M. (2006). The Evolution of Cooperation.

frey-Smith proposes that, in order to solve this problem, higher-level entities "de-Darwinize" the replication of their low-level components via some mechanisms.

The first of those is related to the bottlenecks (B), which guarantee some uniformity in the offspring cells<sup>377</sup>. When an individual starts its own development out of one single cell (as it happens in the case of the human zygote), the resulting cells will be close to genetic clones of the original; the bottleneck limits variation (V) and reduces the force of evolutionary competition at the cellular level.

The second mechanism is associated to Germ Lines (G). The presence of specialized kinds of cells (somatic and germ) de-Darwinizes the low-level populations because the only cells that have heritable properties in the long term are those in the germ line. The other cells (soma) have limited long-term heritable properties, since their influence is confined *within* the collective entity, whereas the germ line reproduces the *entire collective entity*.

Please note that Godfrey-Smith's approach is based simultaneously on a bottom-up and a top-down process. The replication of the collective reproducer is based on processes happening in its lower level elements (G), but the collective entity itself is organizing those elements for its own purposes, de-Darwinizing their processes of change. No collective reproducer is independent of the underlying logic of its lower-level components, but the low-level entities are so dependent on the collective structure that they almost lose their independence.

#### 3.1.3. Levels, Transitions and Multilevel Selection

In the second chapter, I argued that group selection played a major role over the course of human evolution, as a result of the gene-culture coevolutionary process.

My point can be summarized in the following terms. Kin selection and direct reciprocity sustained cooperation in our primate lineage, relying on a mind capable of recognizing cues in the environment that reasonably identified both who is member of a kin group and who is a reliable cooperator. Both mechanisms are able to suppress free-riders, either by not allowing altruism to be directed to those who would not contribute to the

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377 See Godfrey-Smith, P. R. (2009). *Darwinian Populations and Natural Selection*. p. 102.



spread of the donor's genes (kin selection), or by limiting altruism to benefit other cooperators and by punishing free-riders (reciprocal altruism). Nonetheless, both mechanisms are limited because either they impose constraints on the genetic profile of the cooperators, despite allowing for cooperation in a huge group (kin selection), or they impose constraints on the size of the group, despite allowing for cooperation in a genetically diverse community (reciprocal altruism).<sup>378</sup>

The social and environmental pressures of the late Pleistocene facilitated the evolution of culture as a means to overcome these constraints.<sup>379</sup> The climatic instability of the Pleistocene favored the evolution of species able to adapt their behavior to moderately unstable environments, through the imitation of the most common behavior in a group. Culture (cultural accumulation<sup>380</sup>) might have been a by-product of this process, which also led to the expansion of the size of hominin groups, now organized not only via psychological processes acting only at the individual level, but also via group-level processes resulting from the sharing of a cultural background.

Culture and cultural accumulation also enabled the evolution of larger societies. Instead of relying on the individual memory of past interactions as a cue to separate cooperators from free-riders, the evolution of culture enabled the separation of outsiders from in-groups as a cue for cooperation – or indirect reciprocity. Instead of punishing free-riders based solely on individual monitoring, now the whole group is held responsible for apply-

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378 See Nowak, M. A. and Highfield, R. (2011). *SuperCooperators*.

379 See Boyd, R. and Richerson, P. J. (2005b). Why Does Culture Increase Human Adaptability? In Boyd and Richerson (Eds.), *The Origin and Evolution of Cultures* (pp. 35-51). New York: Oxford University Press.

380 It is important to distinguish between culture and cultural accumulation. As previously stated, I adopt here the concept of culture adopted by Peter Richerson and Robert Boyd: "Culture is information capable of affecting individuals' behavior that they acquire from other members of their species through teaching, imitation, and other forms of social transmission." In Richerson, P. J. and Boyd, R. (2008). *Not by Genes Alone: how Culture Transformed Human Evolution*. p. 5. Many animal species, such as chimpanzees, Japanese monkeys and even dolphins and some birds also display culture in some sense. See Martínez-Conteras, J. (2011). *O modelo primatológico de cultura*; Blackmore, S. (2000). *The Meme Machine*. However, only humans display the more sophisticated ability of cultural accumulation. Unlike other animals, which do not build on the acquired cultural variants, we are capable of doing so, in such a way that culturally transmitted knowledge slowly accumulates over time. See Richerson, P. J. and Boyd, R. (2008). *Not by Genes Alone: how Culture Transformed Human Evolution*. pp. 48-54.

ing sanctions on outsiders and free-riders – a process possible because some specific instincts have been selected at the psychological level (the tribal instincts hypothesis).<sup>381</sup> The path to a legal system is now open, because the whole group can be organized through the observance of culturally shared norms.

The evolution of culture also opened the path to cultural group-selection, because it created conditions for the 'Darwinian algorithm' to operate at a higher group level. Given a certain isolation of cultural groups and the presence of mechanisms such as conformist transmission and moralistic punishment, variation, heredity and differential fitness can also be applied at the cultural level. Different groups share distinct cultural traits (variation), which are replicated to subsequent generations (heredity), and different memes affect the replication odds of a group (differential fitness). This is a product of multilevel selection processes, because the stability of the higher cultural level is built upon some specific psychological traits, adapted to life in human cultural groups.

This discussion can also be linked with Godfrey-Smith's perspective, because human groups can be understood as collective reproducers. From this premise, it can be inferred that the evolution of culture produced a new evolutionary level – new Darwinian individuals – in our natural history. Natural selection acts both on the levels of human individuals and whole human groups simultaneously.

Before approaching this subject, however, it is necessary to elucidate how Godfrey-Smith relates the evolutionary transition to new Darwinian individuals and the emergence of new evolutionary levels.

According to him, the hierarchical organization of the biological world involves parts and wholes. "Genes, roughly speaking, are parts of chromosomes, which are parts of cells. Cells are parts of multicellular organisms, which are parts of social groups and subpopulations within species."<sup>382</sup> Furthermore, each of these 'parts' can reproduce and, as a consequence, can be understood as a Darwinian population in their own right. I will argue that the Godfrey-Smith's view can be developed to explain also the evolution of human societies.

One result of this reasoning is that cases of multi-level selection can be defined as the nesting of Darwinian populations within other Darwinian

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381 See chapter 2 for a discussion about the evolution of social tribal instincts.

382 In Godfrey-Smith, P. R. (2009). *Darwinian Populations and Natural Selection*. p. 109.

populations.<sup>383</sup> In all these nested levels, there are evolving populations. Nonetheless, Godfrey-Smith does not think that there is a replicator accountable for reproduction in each of these levels; as a matter of fact, he urges us to abandon the 'gene-eye view', because there might be only one replicator nested within many layers of evolutionary levels, the latter acting as interactor.<sup>384</sup> In his proposal, we should focus on what unit is the selected one in a particular evolutionary level. If we are working at the cellular level, the cells are the evolutionary units; when we focus on the level of a whole organism, that might be the evolutionary unit. As he states, "questions about the 'unit' of selection are not ambiguous; the units in a selection process are the entities that make up the Darwinian population at that level."<sup>385</sup>

But how do low-level Darwinian populations bring about the emergence of high-level Darwinian populations? In other words, how does the *transition* between low-level and high-level entities happen? This theme has been discussed under the label of 'transitions in evolution', at least since John Maynard Smith and Szathmáry's *The Major Transitions in Evolution*.<sup>386</sup> According to them, the increase of complexity in the course of evolution is the result of major transitions in the transmission of genetic information between generations.<sup>387</sup> Some examples include the origin of eukaryotes, genetic codes (both RNA and DNA), and multicellularity.

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383 See Godfrey-Smith, P. R. (2009). *Darwinian Populations and Natural Selection*. p. 110.

384 In his own words: "So cases of 'multi-level selection' are simply those where a system contains Darwinian populations at different levels, all evolving. It is significant, then, that much of the literature in this area has not applied a view of this kind. Sometimes the reason is the adoption of the replicator approach. This view holds that questions about 'levels' and 'units' in a Darwinian context are always ambiguous, as there are two roles that need to be filled in any evolutionary process. First, there must be entities at some level that act as replicators—entities that are faithfully copied. Second, there must be entities—perhaps the same, perhaps different—that act as 'interactors' or 'vehicles.' These are the entities whose interaction with their environment leads to the differential copying of the replicators. There may be a hierarchy of such interactors, all with different effects on the copying occurring at the replicator level." In Godfrey-Smith, P. R. (2009). *Darwinian Populations and Natural Selection*. p. 111.

385 In Godfrey-Smith, P. R. (2009). *Darwinian Populations and Natural Selection*. p. 111.

386 See Smith, J. M. and Szathmáry, E. (1997). *The Major Transitions in Evolution*.

387 See Smith, J. M. and Szathmáry, E. (1997). *The Major Transitions in Evolution*. p. 3.

In each of these transitions, lower level entities have somehow enabled the evolution of higher level entities despite natural selection acting strongly on the lower levels in order to select the units that would be better fit at that level, possibly disrupting stability at the higher level. Evolution at the lower levels usually selects free riders that gather the benefits of cooperation while returning little to the other units at that level.<sup>388</sup> We cannot assume that higher level units emerge because of benefits obtained in the remote future since free riders would subvert integration to their own interests long before the benefits would be reaped.

Smith and Szathmáry's answer to this problem is based on three distinct mechanisms: *kin selection*, *contingent irreversibility* and *central control*.<sup>389</sup> The first process is kin selection. In most transitions, the higher level entity begins with one or a few cells which divide themselves and produce other cells with a high degree of genetic relatedness, a procedure that suppresses free-riding (see chapter 2). A multicellular organism begins its life from a single fertilized egg in which all cells are genetically identical.<sup>390</sup>

Contingent irreversibility, or path dependence, is another mechanism through which higher level units could contain the centrifugal power of free-riding in lower level.<sup>391</sup> Some evolutionary products, even after a long time, cannot revert to become simpler beings due to inertia and other accidental reasons, but not because of natural selection *per se*. Smith and Szathmáry mention the irreversibility of the mitochondria<sup>392</sup> as an example; although originally composed of prokaryotes, its current composition wouldn't allow it to be reversed to its former state, because all its genes are contained in the nucleus – thus, it now exists as a higher level entity, irreducible to its former state.

A third possibility is central control. Organization can be maintained through the existence of a central feature that keeps low level integrity,

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388 See Smith, J. M. and Szathmáry, E. (1997). *The Major Transitions in Evolution*. p. 7.

389 See Smith, J. M. and Szathmáry, E. (1997). *The Major Transitions in Evolution*. pp. 8-9.

390 See Smith, J. M. and Szathmáry, E. (1997). *The Major Transitions in Evolution*. pp. 8-9.

391 On this point, see Desjardins, E. (2011). Reflections on Path Dependence and Irreversibility: Lessons from Evolutionary Biology. *Philosophy of Science*, 78(5), 724-738.

392 See Smith, J. M. and Szathmáry, E. (1997). *The Major Transitions in Evolution*. p. 9.

suppressing free-riders. Central control does not need to be conscious of its role; it might arise as a result of natural selection.<sup>393</sup>

The transition from low level to higher level entities usually entails two evolutionary advances: *division of labor* and the emergence of *new mechanisms of information transmission*.

Division of labor is favored by the natural selection of new Darwinian individuals because specialized units can be more efficient than units that perform all the functions needed by the whole system. The division of labor in prokaryotes and eukaryote cells is one example mentioned by the authors. In prokaryotes, there is no separation between the genetic nucleus and the cytoplasm, a feature that imposes difficulties in sustaining more complex forms of life. In eukaryotes, the separation between the nucleus and the metabolic cytoplasm allowed the recruitment of other organelles through symbiosis, enabling even further specialization. The division of labor between sexes is another typical example, observed in many species. Typical mammal males are bigger and stronger than females and, as a result, they can specialize in the protection of the band. Females, on their turn, specialize in nourishing the offspring. If there was no such division and each individual performed both functions, the number of sustainable offspring would be certainly lower because the time dedicated to their protection would be discounted from the time dedicated to raising the youngsters.<sup>394</sup>

Another adaptation caused by evolutionary transitions is the emergence of new ways of information transmission. When a new system emerges out of lower level systems, new forms of transmitting information are also unfolded. The origin of the genetic code is a paramount example: long before DNA and RNA, information-based hereditary systems such as autocatalytic systems already existed, but DNA increased the efficiency of replication.

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393 Smith and Szathmary mention the following example: "But there is one sense in which the idea of central control may be helpful. If a 'selfish' mutation occurs in a chromosomal gene, a suppressor mutation at any other locus in the genome would be favoured by selection. Hence, the rest of the genome may win the contest, not because of any analogue of majority voting, but because of the large number of loci, and hence of possible suppressor mutations, that are available for each selfish mutation. It may be relevant that attempts to use driving chromosomes in biological control have so far failed because of the rapid evolution of suppression. It is in this sense that Leigh's (1971) idea of a 'parliament of genes' should be taken." In Smith, J. M. and Szathmary, E. (1997). *The Major Transitions in Evolution*. p. 10.

394 See Smith, J. M. and Szathmary, E. (1997). *The Major Transitions in Evolution*. pp. 12-13.

Also, eukaryotes and prokaryotes transmit their regulative states hereditarily, not based on changes in DNA sequence but due to changes in the process of methylation, which produces different phenotypes out of the same genetic content.<sup>395</sup> The human language would be another paramount example of how information transmission is one of the features of the emergence of a new system.<sup>396</sup>

Peter Godfrey-Smith reads Smith and Szathmáry's major transitions as major evolutionary events that fundamentally change the character of evolution (a broad sense of "major transitions"), and instead adopts Richard Michod's<sup>397</sup> perspective, designated as "transitions in individuality" to refer to transitions that lead to new kinds of biological individuals (in a narrow sense of the term). Richard Michod's, John Maynard Smith's and Eörs Szathmáry's perspectives are not so different to justify a distinction between a broad and a narrow sense of the term "transition." The very examples of new Darwinian individuals mentioned by Godfrey-Smith are also examples alluded to by Smith and Szathmáry – the evolution of the eukaryotic cell and the evolution of multicellularity.<sup>398</sup>

So, how do new Darwinian individuals come out to be? By developing a standard model, Godfrey-Smith proposes that a new Darwinian individual emerges when a fundamental change occurs in the status of collective entities. They start to come to light as an association of different reproducers that could be said to reproduce marginally at the collective level. For in-

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395 "The process of methylation can give rise to phenotypically different strains of bacteria, which remain different through many cell divisions, although genetically identical. For example, *E. coli* cells can have various types of pili, which attach them to various host tissues. The production of pili is not constitutive, but depends on appropriate environmental conditions. Even in favourable conditions, however, pili may be absent: the cells can be in one of two 'phases', ON and OFF (Van der Woude et al., 1992). The difference is stably inherited through cell division. It depends on which of two GATe sites upstream of the gene is methylated, and also on specific methylating enzymes, and transcription factors that bind to these sites. In other words, prokaryotes also possess a second inheritance system, depending on the labelling of DNA rather than on changes in sequence, analogous to the system responsible for cell differentiation in multicellular organisms." In Smith, J. M. and Szathmáry, E. (1997). *The Major Transitions in Evolution*. pp. 221-222.

396 See Smith, J. M. and Szathmáry, E. (1997). *The Major Transitions in Evolution*. pp. 281-308.

397 See Michod, R. E. (1999). *Darwinian Dynamics: Evolutionary Transitions in Fitness and Individuality*. Princeton: Princeton University Press.

398 See Godfrey-Smith, P. R. (2009). *Darwinian Populations and Natural Selection*. p. 122.

stance, a collection of independent cells starts to clump together, although reproducing autonomously. Later on, the different reproducers might connect their reproductive form to the collective unit, gaining integration at the higher level, losing their autonomy and forming a Darwinian entity closer to the paradigmatic case. By losing reproductive autonomy, the low-level components of the new individual are also partially de-Darwinized.

Their evolution then becomes associated with the evolution of the whole collective reproducer: "Their independent evolutionary activities are curtailed, constrained, or suppressed by what is happening at the higher level - a partial 'de-Darwinizing' of the lower-level entities."<sup>399</sup> This could be, for example, what happened in the evolutionary origins of eukaryote cells; one prokaryote might have enveloped another, and both continued to replicate independently at first, while remaining attached together. Later on, the functional differentiation between the parts (through the separation of the nucleus and cytoplasm) led their reproductive fate to be intrinsically shared.

But how does the higher level entity suppress free-riding at the lower levels? As John Maynard Smith and Eörs Szathmáry propose, one such mechanism is kin selection. If lower level entities share their fates in such a way that the profits reaped by one unit also benefits the others, then altruism – cooperation at the lower level – might emerge. *Kin selection can be organized through bottlenecks* that force every generation at the collective level to begin anew from lower-level entities genetically identical.<sup>400</sup>

A second possibility is the existence of *germ lines* and the *division of labor* between soma and germ.<sup>401</sup> This alternative protects the collective against a particular kind of subversion that could arise in the kin selection possibility. Without the distinction between germ and soma, every unit of the system could compete with the others to be the basis of the next generation. Even if kin selection ensures genetic identity, there is always the possibility of a mutant cell that could do better by subverting the resources to its own benefit. The germ/soma distinction limits the extent of the damage of such a mutant unit because the somatic low level units cannot produce a high level collective reproducer at all.

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399 In Godfrey-Smith, P. R. (2009). *Darwinian Populations and Natural Selection*. p. 122.

400 See Godfrey-Smith, P. R. (2009). *Darwinian Populations and Natural Selection*. p. 123.

401 See Godfrey-Smith, P. R. (2009). *Darwinian Populations and Natural Selection*. p. 123.

Another way to suppress free-riding at the lower-levels would be a mechanism devised by Smith and Szathmáry, *central control*. If one of the low-level units has control over the reproduction of the collective system, it can be seen as a functional unit of the collective individual. Even if there is no bottleneck or germ/soma distinction, whenever a unit of the system controls the reproductive logic of the entire system, low level competition can be suppressed, aligning the reproductive benefits of every layer of the system.

The purpose of this section was to introduce some concepts in order to organize the discussion about Darwinian evolution. Rather than adopting the textbook definition based on variation, heredity and differential fitness, Godfrey-Smith proposes a multidimensional perspective based on Heredity, Continuity, Variation, Intrinsic Fitness, and Reproduction, which, on its turn, is based on three other variables, Bottlenecks, Germ Lines, and Integration. In the next section, I will refer to these concepts in order to understand how the Darwinian framework could be applied to understand sociocultural evolution. After all, are there Darwinian populations at the sociocultural level?

#### 3.2. *Sociocultural Darwinian Populations*

So far, I have described Peter Godfrey-Smith's idea of Darwinian population and how it relates to the emergence of collective entities out of low-level units. Now it is time to bring this discussion closer to the sociological thought, in order to support the claim that, pretty much like the concept of function, the idea of Darwinian population is a formal concept which both sociology and biology can rely on in order to explain the emergence of complex phenomena.

In order to complete this task, I will begin by discussing a parallel between biology and sociology in relation to the emergence of complexity. My objective is to demonstrate that the issues discussed in both fields concerning the emergence of order from low-level components are really similar, and, as such, the discussions from one domain can be profitable to the other. As a result, Godfrey-Smith's discussion on Darwinian populations might be understood as a formal discussion concerning Darwinian populations as such, and *not only* as biological entities. The next three subsections present the results of an effort to apply Godfrey-Smith's theoretical approach to entities of the sociological domain.



The first two subsections describe the problem of emergence in sociology and show how the questions debated in the sociological domain are similar to those discussed in biology and epistemology. The second subsection is an attempt to use Luhmann's systemic theory as a bridge between sociological theory and biology. In order to do so, however, I have to reconstruct its theoretical framework in order to make it compatible with Darwinian theory – a necessary step towards the third subsection, in which I refer back to Godfrey-Smith's Darwinian Population's parameters in order to argue that human societies are full-blown Darwinian individuals and, as such, are subject to evolution.

### 3.2.1. The problem of Emergence in Sociology

The relationship between the individual and collective orders is a fundamental issue in both the biological and sociological domains.<sup>402</sup> If the previous discussions showed the relevance of the subject for biology and one possible perspective to solve the issue in that domain, the debate now known as the *micro-macro link*<sup>403</sup> has been pervasive in sociological thought since its inception. Sociologists such as Weber, Durkheim, Simmel, Marx, Parsons, Blau and Coleman have explored the structure of the relationship between the individual and society, developing far distinct theoretical paradigms, such as functionalism, structuralism, exchange theory and rational choice theory.<sup>404</sup>

Much of this discussion has been labeled under the notion of *emergence*, based on the idea that higher-order [collective] phenomena, although built upon networks of individual action, are not reducible to lower-level processes.<sup>405</sup> As Tony Lawson says, "an emergent entity, where addressed, is

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402 See Sawyer, K. R. (2001). Emergence in Sociology: Contemporary Philosophy of Mind and Some Implications for Sociological Theory. *American Journal of Sociology*, 107(3), 551-585.

403 See Alexander, J. C. (1987). *The Micro-Macro Link*. Berkeley: University of California Press.

404 In Sawyer, K. R. (2001). Emergence in Sociology: Contemporary Philosophy of Mind and Some Implications for Sociological Theory. p. 551.

405 It is important to add that the idea of emergence is not to be confused with the concept of causation. I assume that there is a weak sense in which low level entities are causally linked to higher level emergent entities. First of all, the existence of the lower level entities is a necessary condition for the emergence of the higher level ontological reality. By assuming this, I do not claim that the causal link between levels establish an ontological priority of the lower levels over the

usually found, or anyway held, to be composed out of elements deemed to be situated at a different (lower) level of reality to itself, but which have (perhaps through being modified) become organised as components of the emergent (higher level) entity or causal totality."<sup>406</sup>

But what exactly does *emergence* mean? Paul Humphreys' discussion on the subject, although more focused on the domain of physics, is clarifying.<sup>407</sup> First, he states that *emergence is more than supervenience*. Supervenience entails an ontological relationship in which the low-level properties of a system determine its higher level properties.<sup>408</sup> But since the relationship between levels is one of necessity, there is no reason to abandon the lower level and assume the ontological reality of the higher level. As a result, the higher level is absolutely reducible to the lower ontological levels. Massimo Pigliucci summarizes Humphreys' argument against supervenience in two main reasons: first, if an ontological system A is supervenient on B, then all we need to explain A is B; and second, if A supervenes upon B, A's existence depends on the existence of B and – again – "all that we need in terms of ontology is B."<sup>409</sup> As a result, Humphreys discards supervenience, instead proposing that *emergence* (not supervenience) is the concept we need to explain the relationship between different ontological layers.

According to him, emergent phenomena display six features. First, emergent systems are *novel*. They exhibit new properties that did not exist before, or that, in the lower levels, gave rise to the emerged level. As such,

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higher ones, but that it constraints the ontological possibilities of the emergent system. This position could be contrasted with a stronger one, in which the emergent system is causally determined by its low-level components, being a merely epiphenomenal reality. See, e.g., Kim, J. (1999). Making Sense of Emergence. *Philosophical Studies: An International Journal for Philosophy in the Analytic Tradition*, 95(1/2), 3-36; Emmeche, C., Køppe, S. and Stjernfelt, F. (1997). Explaining Emergence: Towards an Ontology of Levels. *Journal for General Philosophy of Science / Zeitschrift für allgemeine Wissenschaftstheorie*, 28(1), 83-119; Sawyer, K. R. (2004). The Mechanisms of Emergence. *Philosophy of the Social Sciences*, 34(2), 260-282.

406 In Lawson, T. (2013). Emergence and Morphogenesis: Causal Reduction and Downward Causation? In Archer (Ed.), (pp. 61-84). Lausanne: Springer Science. p. 61.

407 See Humphreys, P. (1997). Emergence, Not Supervenience. *Philosophy of Science*, 64, 337-345.

408 For a discussion on the subject, see von Kutschera, F. (1992). Supervenience and Reductionism. *Erkenntnis*, 36, 333-343.

409 See Pigliucci, M. (2012). *Essays on Emergence, Part III*. Retrieved from <http://goo.gl/Tqhosk>.

the emergent system instantiates "a previously uninstantiated property."<sup>410</sup> Second, a phenomenon is emergent if they are *qualitatively different* "from the properties from which they emerge." The third criterion is *absence at the lower levels*, for logical or nomological reasons. I would add that ontological reasons also hamper the possibility of a lower level displaying properties of the emergent system. Fourth, there is a *nomological difference*: different laws apply to the distinct levels and, as such, the phenomena at the higher level respond to different laws and present different dynamics from the phenomena at the lower level. Fifth, emergent properties result from the *interaction* among its constituents. And sixth, emergent phenomena are *holistic* in the sense that they are properties of the entire system, irreducible to the local properties of its constituents.<sup>411</sup>

I take as a premise that sociological reality is emergent in this sense, and it displays all the features highlighted by Humphreys. Social entities (either entire social systems or social entities) display novel parts, which do not exist in their constituting elements. A legal system, for example, is a feature that exists in society, not in the constitutive individuals of a social group. Social entities are qualitatively different from individuals as well, and social properties (such as 'legitimacy', or 'social integration', for instance) are absent at the lower ontological levels.

Also, the understanding of a social system, or of a social entity, demands different theoretical accounts than those needed to explain individual behavior. Take the different perspectives from economics, sociology and psychology as an example of how distinct the theoretical approaches are. Even if microeconomics seeks to explain economic processes based on an account of how individuals behave, their analytical tools are grounded on the results of the interaction, not on the cognitive processes explaining individual behavior. Take the concept of equilibrium in game theory, for example: equilibrium can only be attributed to a social situation, not within each player in a game context. Social entities also emerge from the interaction at lower levels. A business firm can be defined as an association of individuals with the purpose of developing an economic activity. Individuals interact, perform specific constitutive acts, and establish the organization, which performs acts in its own right. Finally, social phenomena can be also described as holistic. Being a constitutional democracy, for example, is a property of the whole society, irreducible to any of its constitutive components.

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410 See Humphreys, P. (1997). Emergence, Not Supervenience.

411 See Humphreys, P. (1997). Emergence, Not Supervenience.

So far, so good. Sociological entities can be said to be emergent. But acknowledging this point leaves us with the question: how does sociological entities emerge from their individual components? In order to address this issue, I will focus on Keith Sawyer's answer to this problem, not because his answer is particularly relevant, but because he performs a thorough evaluation of contemporary sociological theories that try to solve the problem of emergence.

According to Keith Sawyer, although contemporary sociology has focused on the problem of emergence, the answers provided are contradictory and unsatisfactory. In order to support this claim, he mentions *methodological collectivists*, like Margaret Archer,<sup>412</sup> who proposes that collectives possess emergent properties irreducible to individuals; and *methodological individualists*, who assume that collective properties are ultimately reducible to individual properties.<sup>413</sup> After an exhaustive review of both positions,<sup>414</sup> Sawyer concludes that both perspectives are doomed to fail because they do not properly address four issues related to social emergence: realism, causation, mechanism, and irreducibility.<sup>415</sup>

Concerning *realism*, Sawyer states that individualist emergentists sustain that emergent social properties are not real, but mere theoretical constructs that need a low level explanation reducible to individual interactions. On the opposite side, collective emergentists support social realism, accepting the claim that social structures are autonomous from individuals.<sup>416</sup> The individualistic perspective is untenable because it does not acknowledge the *causal* role of social properties on individual behavior,

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412 See Archer, M. S. (1996). *Culture and Agency*. Cambridge: Cambridge University Press; Archer, M. S. (2000). *Being Human: the Problem of Agency*. Cambridge: Cambridge University Press; Archer, M. S. (Ed.). (2013). *Social Morphogenesis*. Lausanne: Springer Science & Business Media.

413 See Hayek, F. A. (1998). *Law, Legislation and Liberty*.

414 On the side of methodological collectivists, Keith Sawyer reviews the sociological theories proposed by Peter Blau, Roy Bhaskar, Margaret Archer, Douglas Porpora, and Kyriakos Kontopoulos. As representatives of methodological individualists, Sawyer reviews the theories advanced by Axelrod, Coleman, Epstein, Axtell, Homans, Hayek and Menger. My purpose, here, is not to provide a full review of these authors, but to summarize and evaluate Sawyer's critique. In order to see his thorough review of these authors, See Sawyer, K. R. (2005). *Social Emergence: Societies as Complex Systems*. Cambridge: Cambridge University Press. pp. 63-99.

415 See Sawyer, K. R. (2005). *Social Emergence: Societies as Complex Systems*. p. 90.

416 See Sawyer, K. R. (2005). *Social Emergence: Societies as Complex Systems*. p. 90.

while a strong collective approach is usually criticized for sustaining a social ontology entirely autonomous from individuals.<sup>417</sup>

The second issue relates to *causation*. Methodological collectivists assume the existence of social properties that cause other social and individual facts. A paramount example of this perspective is Durkheim's concept of *social fact*. Individualists reject this approach on the grounds that all causes are reducible to individual interactions and, as such, there are no social facts.

According to Sawyer, collectivists are wrong because they usually assume that social entities are ontologically autonomous from lower level entities – but, as such, they would not be able to have causal power over them. Individualists, on the other hand, are wrong because they reject the very possibility of downward causation of social facts on individuals – an empirically odd position. However, Sawyer shows an intermediate position, sustained by non-reductive individualists. They conceive of social causation as a feedback process through which social properties can be imposed on individual properties insofar as their causal force relies "on its individual-level supervenient base."<sup>418</sup>

In what concerns the *mechanism* through which emergence arises, collectivists and individualists can find common ground according to Sawyer. For both, individual *interaction* is of paramount importance. Margaret Archer claims that, over time, interactions produce supervenient social structures that impose constraints on individual behavior. The idea of social morphogenesis entail that the social structures of the *present* emerged out of *past* interactions, but organize *current* and *future* individual action. As a result, since current structures emerged from individual *past* actions, they cannot be reduced to the actions practiced by *current* individuals.<sup>419</sup>

An example from individual methodologists comes from Robert Axelrod's tournament mentioned in chapter 2. Cooperation structured around tit-for-tat strategists can emerge in a given population out of the interaction among individuals using different strategies. As a result, the population can be spatially organized (a group property) in clusters where tit-for-tat strategists cooperate with each other and isolate others.

The last challenge to emergentists is related to irreducible complexity. There can be a huge disjunction between processes happening at lower-level

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417 See Sawyer, K. R. (2005). *Social Emergence: Societies as Complex Systems*. p. 91.

418 In Sawyer, K. R. (2005). *Social Emergence: Societies as Complex Systems*. p. 92.

419 In Sawyer, K. R. (2005). *Social Emergence: Societies as Complex Systems*. p. 83.

els and higher-levels simultaneously. The same processes happening at the individual level can lead to different results in the higher level. This – again according to Sawyer's reading – is a challenge both for individualists, who do not accept the idea of irreducible complexity, and for collectivists, who have not yet defined the properties of systems likely to display irreducible high level emergent properties.<sup>420</sup>

Although Sawyer rightfully identifies the issues at stake, he does not offer a convincing alternative theory to cope with the problem of emergence. However, he points out some useful elements to build a persuasive postulation on the subject. According to him, studying social emergence requires us to focus simultaneously on three elements of analysis: individuals, their interactions, and the emergent social properties.<sup>421</sup> In his evaluation, most sociologists have focused on one or two of these elements, but not on all three of them. His narrative classifies the theoretical positions of 20th century sociology in two main categories concerning this problem: the *Structure Paradigm* and the *Interaction Paradigm*. Sawyer proposes a new theoretical approach, the *Emergent Paradigm*.<sup>422</sup>

The Structure Paradigm is based on the claim that there are only two levels of analysis: *individual* and *social*. This paradigm also admits some subdivisions. *Structural determinists*, such as Marxists, social constructivists and structuralists<sup>423</sup> admit that structures are foundational and that, as a result, individual action is fully determined by sociocultural structures. According to them, society is the main ontological entity, and individual ac-

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420 See Sawyer, K. R. (2005). Social Emergence: Societies as Complex Systems. p. 94.

421 See Sawyer, K. R. (2005). Social Emergence: Societies as Complex Systems. p. 191.

422 It is important to note that Sawyer's distinction between paradigms should be understood as a didactic artifact to group widely different sociological perspectives in order to contrast them with his own approach. Only by assuming this benevolent perspective it is possible to ignore some grotesque implications of his classification scheme. For instance – as we will see –, he classifies the Frankfurt School as having a Structural Paradigmatic perspective, whereas he considers Habermas (a member of the Frankfurt School!) a representative of the Interaction Paradigm. Besides that, I think that the proposed scheme, as flawed and simplistic as it might be, is useful in highlighting the major issues at stake.

423 Sawyer includes in the Structural Paradigm, Marx, the Frankfurt School, Levi-Strauss, Bathes, and Foucault.

tion – and ultimately even individual *nature* – is determined by social structures.<sup>424</sup> Causation is a top-down process.

*Methodological individualists* point out to the opposite relationship between the individual and the social domain: individual actions and beliefs determine the social structure. Everything in the social domain is determined by lower-level properties and, as such, causation is conceived of as a strict bottom-up process. Examples of these positions are microeconomic perspectives based on rational choice and game theory.<sup>425</sup> There are also *hybrid theories*, which admit causation in both ways, such as Parsons' structural-functionalism and Archer's morphogenetic social realism.<sup>426</sup> For Sawyer, however, all hybrid theories end up falling on either the Structure Paradigm or the Interaction Paradigm.

The Structural Paradigm fails, according to Sawyer's reading, because it does not incorporate any theory about how what happens in the lower levels of reality connects to social reality. This is not an unexpected result, since the ontological basis of social reality is either assumed to rely on higher-level processes (structural determinists), or to exist merely as a supervenient structure with no downward causal power (methodological individualists). As a result, it does not explain how structures emerge, because they are either assumed to exist as such from the beginning, or to not exist at all<sup>427</sup>.

The second perspective concerning the level of analysis is the Interaction Paradigm. Instead of focusing on the individual/social dichotomy, this standpoint focuses on interactions as its analytical units. According to interactionists, all phenomena – both at the structural and the individual levels – derive from networks of interactions. The precursor of this approach was the German sociologist Georg Simmel, who explained the whole social order in terms of interaction. In a commentary on Simmel's concep-

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424 In Sawyer's words: "In the 1930s, the Frankfurt School extended these notions by arguing that knowledge itself is socially constructed; in the 1960s, French structuralists such as Levi-Strauss, Barthes, and Foucault argued that even our concept of the 'individual' had been a byproduct of a certain period in capitalism." In Sawyer, K. R. (2005). *Social Emergence: Societies as Complex Systems*. p. 193.

425 See Sawyer, K. R. (2005). *Social Emergence: Societies as Complex Systems*. p. 195.

426 See Sawyer, K. R. (2005). *Social Emergence: Societies as Complex Systems*. pp. 192-193.

427 In Sawyer, K. R. (2005). *Social Emergence: Societies as Complex Systems*. p. 197.

tion of society, David Frisby states that "society is thus composed of the ceaseless interaction of its individual elements, a conception that forces Simmel's sociology to concentrate upon human relationships, namely, social interaction."<sup>428</sup> Other sociologists included by him in this paradigm are Cooley, Mead, Bourdieu and Habermas.<sup>429</sup>

Most interactionists' denial of the ontological status of social structures is flawed, since they do not propose any mechanism between social structure and interaction. The claim that only interactions matter conflates both social structure and individuals in a continuum flow (interaction).<sup>430</sup> In doing so, interactionists cannot offer a convincing account of how causation between individuals and structures occur, neither of how social structures constrain individuals and interactions.

This is why it sounds odd to group Habermas' theory of communicative action under the label of strict symbolic interactionism. Although the German philosopher was deeply influenced by Mead's focus on symbolic mediated interaction<sup>431</sup>, it would be wrong to affirm that he denies the ontological status of social structures and individuals. The very distinction between *lifeworld* and *system* in his theory can only be properly understood if the three levels are considered and not conflated into communication. For him, society is conceived of simultaneously both as system and lifeworld<sup>432</sup>. Roughly speaking, system refers to an external-observer's perspective according to which society is a self-regulative autonomous system constituted by subsystems serving a function in the maintenance of the whole.<sup>433</sup> The internal logic of each system is founded on patterns of strategic action based on the pursuit of the subsystem's ends. Lifeworld, on its turn, refers to the shared common understandings of members of a particular community, founded not on strategic action, but constituted by language and culture (seen as "the stock of knowledge from which participants in communication supply themselves with interpretations as they

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428 In Frisby, D. (1992). *Simmel and Since*. 1992: Routledge. p. 23.

429 See Sawyer, K. R. (2005). *Social Emergence: Societies as Complex Systems*. p. 199.

430 See Sawyer, K. R. (2005). *Social Emergence: Societies as Complex Systems*. pp. 205-206.

431 See Habermas, J. (1987). *The Theory of Communicative Action: Lifeworld and System - A Critique of Functionalist Reason*. pp. 4-42.

432 See Habermas, J. (1987). *The Theory of Communicative Action: Lifeworld and System - A Critique of Functionalist Reason*. p. 118.

433 See Habermas, J. (1987). *The Theory of Communicative Action: Lifeworld and System - A Critique of Functionalist Reason*. p. 150.



come to an understanding about something in the world")<sup>434, 435</sup>, and constituting communicative action. In this sense, lifeworld refers to the individual interaction dynamics, while system refers to how a structure is produced on the grounds of strategic action.

A way to solve the dichotomy between the Structural Paradigm and the Interaction Paradigm is what Sawyer defines as the Emergent Paradigm<sup>436</sup>, an attempt to overcome the deficiencies of both paradigms. According to his account, the Interaction Paradigm fails for rejecting the structural level of analysis, while the Structural Paradigm rejects symbolic communication and interaction. The Emergent Paradigm, as proposed by Keith Sawyer, tries to build on these deficiencies and to reconcile both the Interaction and Structural Paradigms by proposing that "structural properties can be said to emerge from collective micro foundations of action"<sup>437</sup> while acknowledging that structures also impose downward constraints on individuals.

He proposes two new intermediate levels of analysis between micro-sociological and macro-sociological processes: *stable emergents* and *ephemeral emergents*. As a result, his account is based on five levels. The first two levels embody the Micro-sociological level, involving *psychological processes* (Level A) - such as intentions, beliefs, individual memory and cognitive processes -, and *interaction* (Level B) among individuals. The Meso-sociological level includes two other analytical levels, involving both *ephemeral emergents* (Level C) - such as interactional context and structure, status assignments and participation structure -, and *stable emergents* (Level D) - including shared social practices, collective memory and group subcultures. And, finally, there is the Macro-sociological level (Level E), where infrastructure and written texts affecting social structure are taken into account.

These levels interact in a complex manner, designated as *the circle of emergence*.<sup>438</sup> The focal point of the process lies on the intermediate levels -

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434 As Habermas say, "Language and culture are constitutive for the lifeworld itself." In Habermas, J. (1987). *The Theory of Communicative Action: Lifeworld and System - A Critique of Functionalist Reason*. p. 125.

435 In Habermas, J. (1987). *The Theory of Communicative Action: Lifeworld and System - A Critique of Functionalist Reason*. p. 138.

436 See Sawyer, K. R. (2005). *Social Emergence: Societies as Complex Systems*. p. 210.

437 In Sawyer, K. R. (2005). *Social Emergence: Societies as Complex Systems*. p. 210.

438 See Sawyer, K. R. (2005). *Social Emergence: Societies as Complex Systems*. p. 219.

B, C, and D -, leaving both individuals (A) and social structures (E) almost as epiphenomena resulting from the process. Although Sawyer explicitly states that there is a downward causation flow going from social structures to individuals, he barely theorizes about how this happens. Likewise, the role of individuals in the process of emergence is unconvincing, since he splits the concept of individual into two elements: its biological/psychological universal components, which he denies having any role in sociological explanation, and its social psychological nature, the part of individual personality subjected to change due to the socialization processes.<sup>439</sup> Although Sawyer also admits a role for psychological processes in social emergence, he also does not explore it properly.

Interaction (B) between individuals generates *ephemeral emergents* (C), which last only while the interaction is taking place.<sup>440</sup> Conversation is one such example of ephemeral emergence, given the fact that a conversation can only be established through collective action caused by the interaction amongst individuals, while at the same time imposing constraints on that interaction. When a conversation is happening, many limits are imposed on individual action, such as the subject of the conversation and the proper acceptable responses to each communicative act. These constraints are fluid, however, depending on a continuing negotiation between the participants, and the emergent level ends as soon as the encounter is over.

The third level (D) accounts for *stable emergents*, which is related to the shared history of a group, emergent elements that last more than one encounter.<sup>441</sup> They include collective memory, group learning and peer culture, including the culture and language of an entire society. Stable emergents can have different degrees of stability, from weeks or months (such as slangs or jokes) to entire generations (such as the group's history).

The circle of emergence entails causation across all these levels. Structures constrain individuals, but, on the other hand, they are also indirect products of their interaction with one another, mediated across ephemeral and stable emergents. Ephemeral emergents can endure and become stable emergents, able to be crystalized and to cause structural changes. Struc-

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439 See Sawyer, K. R. (2005). *Social Emergence: Societies as Complex Systems*. p. 223.

440 See Sawyer, K. R. (2005). *Social Emergence: Societies as Complex Systems*. p. 213.

441 See Sawyer, K. R. (2005). *Social Emergence: Societies as Complex Systems*. p. 214.

tures can also constrain ephemeral emergents, by providing a contextual background that pre-selects the kinds of interaction that can occur in a given environment. For instance, being in a work environment such as an office or a manufacturing plant (material structure) limits the kinds of interaction between the workers.

Some points should be noticed on Keith Sawyer's theory of emergence. Firstly, Sawyer's Emergentist Paradigm is mostly synchronic and only marginally diachronic. His account explains *how* social structures emanate from individual action across the many layers of sociological analysis *in a given time*, but it does not explain *why* social structures and ephemeral/stable emergents change *over time*. He acknowledges the influence of the past in structures and stable emergents, but does not explain why they are stable at all – the reason why they are selected as a structure.

Second, his account does not provide a good account on how to connect sociology to a naturalistic approach. Although Sawyer acknowledges that some psychological features are universal and the product of evolutionary processes, he is silent on the subject of how this psychological structure imposes enabling/limiting constraints on the kinds of social structures that can emerge.

As such, Sawyer's contribution is an interesting, but incomplete step forward in building an emergent sociological theory. He is right in pointing out to the need for a multilevel theory that takes into account causation across all levels, and he is also right to indicate the epistemological limits of the sociological theories developed so far, but his proposal also has some deficiencies. Both limitations, as I will argue, can be overcome if we introduce a missing element in his formulation: the evolutionary approach, capable both of explaining why structures are maintained over time and of proposing a naturalistic framework to account for sociological problems. This is not a naïve statement based on some presumed superiority of biology over sociology, but a conclusion that derives from assuming that Darwin's natural selection framework of explanation can be applied to any complex system composed of entities that display variation, heredity and differential replication.

In chapter 2, I called attention to gene-culture coevolution, a specific theory about human evolution according to which Darwinian principles can be applied to understand the nature of human sociality. According to the explanation developed in that chapter, the fact that we, human beings, are capable of transmitting culture and accumulating cultural variants over time, and that we enclose ourselves in culturally segregated groups, has enabled natural selection to work at the level of cultural groups. The mode of

cultural cooperation, based on some tribal instincts that enabled us to live in cultural groups, transformed human bands in natural selection units, displaying variation (cultural traits vary among groups), heredity (cultural variants are transmitted within groups from generation to generation) and differential replication (human groups displaying certain traits are more or less prone to replicate their structure to future groups).

As a result, we can attempt to use Darwinian theory in order to understand explain the evolution of cultural and sociological entities. Richerson and Boyd's gene-culture coevolution theory, however, was never aimed at explaining more than cultural evolution as it happens in small cultural groups – or, at best, in large groups based on a culturally homogenous ethos, such as most civilizations in Antiquity. But the path opened by their theory can lead to unexplored destinations. If we take into account developments recently made in sociological theory, we can attempt to construct a multilevel selection sociological theory that can be used to understand the evolution of modern society.

Now, I will refer to a broadly different theoretical approach: Luhmann's systems theory. My point is that, reinterpreted through the lenses of dual inheritance theory, his framework leads to an evolutionary understanding of social evolution that takes into account the reciprocal implications between psychological processes, individual interaction based on the transmission of cultural information, the construction of groups, and the emergence of institutions, structures and social systems. Based on this reformulated approach of his thought, I will argue that the systems theory, reformulated through the lenses of the gene-culture coevolution theory, can be conciliated with Peter Godfrey-Smith's perspective in order to provide a good starting point for the elaboration of a theory of sociocultural Darwinian populations.

#### 3.2.2. Luhmann's Theory as a Bridge between Sociology and Psychology

A major task of the theory of sociological emergence is to explain how social entities emerge from interactions among agents that relate to each other based on their psychology. Traditional sociology is not suited for the conciliatory task of unifying these theoretical fields because it naïvely assumes that social facts can only derive from other social facts and that human psychology cannot play any definite role in explaining the logic of human societies. As Émile Durkheim says, "when the individual has been

eliminated, society alone remains."<sup>442</sup> According to Durkheim, minds cannot impose any constraints on the collective consciousness of a society. The material psychological preconditions of social phenomena are so vague, indeterminate and plastic that "these individual natures are merely the indeterminate material that the social factor molds and transforms."<sup>443</sup>

Of course, Durkheim does not represent the entire sociological tradition. Even during his time, he faced strong opposition from his major rival, Gabriel Tarde, another French sociologist. Tarde accused Durkheim of adopting a scholastic ontology because his assumption that society did not depend on individuals implied that taking individuals out of society would leave everything unchanged.<sup>444</sup> Tarde adopted an atomistic path to address this issue: society is no more than the sum of its parts. In his view, social action was caused by the interaction of individuals who imitated behaviors that later on became internalized in the form of beliefs and desires. As a result, ideas propagated from mind to mind.<sup>445</sup> Sociology was recast as a

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442 See Durkheim, É. (1962). *The Rules of the Sociological Method*. Glencoe: Free Press p. 102.

443 In Durkheim, É. (1962). *The Rules of the Sociological Method*. pp. 105-106.

444 Terry Nichols Clark, professor at the Department of Sociology of the University of Chicago, in the introduction of *Gabriel Tarde on Communication and Social Influence: Selected Papers*, comments on this point in the following terms: "Durkheim posited as the essentially social fact not that which was imitated, but that which was exterior to the individual and imposed on him through a sort of constraint. Firmly committed to the position elaborated by his professor, Boutroux, that sciences developed on successive emergent levels, and that the basic principles of a science must be found distinctly on its 'own level', Durkheim refused to accept that sociological principles should be grounded in psychology. Sociology as a distinctive science, he held, must take as its object of study social facts; and these social facts must find their causes as well as their consequences in other distinctly social facts. An apparently logical extension of this reasoning, which Tarde as well as Durkheim occasionally drew, was that the subject matter of sociology, being exterior to each individual, was consequently outside of all members comprising a given social group. But such a conclusion was absurd: take away all individual members of a group, and the essential sociological characteristics remain. This was, Tarde held, the necessary consequence of Durkheim's postulates, and it generated nothing more than the 'scholastic ontology' of the medieval philosophical realists. In opposition to the doctrine that the whole is more than the sum of its parts, Tarde held that the whole is equal to no more than the sum of its parts; he labeled himself, when forced to do so, a philosophical nominalist." In Tarde, G. (1969). *On Communication and Social Influence: Selected Papers*. pp. 16-17.

445 See Tarde, G. (1969). *On Communication and Social Influence: Selected Papers*. p. 96.

collective psychology, the result of the communication of cultural elements that emerged from individual minds (intra-mental psychology) and were then transmitted to other individuals through imitation. However, even if he considered that understanding, psychological law was an important part of sociology, and Tarde also followed Durkheim's strict fission between the natural world and culture.<sup>446</sup>

In an endeavor to overcome the atomistic and holistic approaches, systems theory attempted to take an alternative route. Its starting point is the Parsonian theorem of double contingency – the idea that social action is ultimately indeterminate because the action of one individual (ego) depends on the action of the other (alter). An expectation about how the alter will behave must occur before the ego decides its course of action. Therefore, social action is indeterminate.<sup>447</sup> Game theory attempts to solve this problem via the concept of equilibrium, which is achieved when every agent behaves rationally and no better outcome could be rationally expected.<sup>448</sup> Talcott Parsons followed a different path, arguing that double contingency can be solved through the assumption of consensus resulting from a shared symbolic system that provides values and normative orientation to guide human action.<sup>449</sup> According to Luhmann, this approach is flawed because it assumes an a priori difference between the biological and psychological structures of the subjects of action (alter/ego). This difference, however, cannot be taken for granted because it occurs only as a result of the differentiation within the dynamic action system and not prior to it.<sup>450</sup>

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446 See Richerson, P. J. and Boyd, R. (2002). Culture is Part of Human Biology: Why the Superorganic Concept Serves the Human Sciences Badly. In Goodman and Moffat (Eds.), *Probing Human Origins* (pp. 59-85). Cambridge (MA): American Academy of Arts & Sciences. p. 62.

447 See Luhmann, N. (1995a). Social Systems. p. 103.

448 See Rapoport, A. (1970). *N-person Game Theory*. Mineola: Courier Dover Publications. p. 63.

449 See Luhmann, N. (1995a). Social Systems. pp. 104-105.

450 Parsons had in mind (in a fairly rough sense) subjects of action, who confront one another with self-determined (not just naturally given) needs, and who depend on one another for the satisfaction of their needs. But this account of the problem leaves its flank open to attack. One would have to ask what these subjects of action (actors, agents) designated as ego and alter really are if what constitutes their 'organism' (latter 'behavioral system') and 'personality' is differentiated only within the action system, and is not given in advance to the system. And one would have to ask how contingency is to be understood if all determinate order emerges only within the problematic of double contingency. See Luhmann, N. (1995a). Social Systems. p. 105.

Rather than focusing on actions of specific individuals, systems theory concentrates on communication as a means of overcoming double contingency in a more determined state of affairs. Double contingency means indeterminacy in the sense that no agent can reliably trust in the action of alters. To solve this problem, systems theory assumes a difference between psychic systems (individual psychology) and the social system.<sup>451</sup> Focusing only on what happens within individual psychology is insufficient because no one has direct access to the content of another's mind; one mind is a black box to another. However, when social action occurs, each agent can trustfully coordinate his actions with the actions of others because he understands the cognitive and normative expectations towards his behavior. These expectations are grounded in shared knowledge that enables the possibility of mutual understanding through communication.<sup>452</sup>

Luhmann recognizes the necessary role of individual psychology in establishing the foundations for the emergence of social systems by stating an important but unfortunately not well-developed hypothesis. According to Luhmann, "Psychic and social systems have evolved together. At any time, the one kind of system is the necessary environment of the other. Persons cannot emerge and continue to exist without social systems, nor can social systems without persons."<sup>453</sup> This is a true advancement when compared with the sociology of Durkheim, Tarde and Parsons, who gave little importance to the codependence between mind and society.

In this sense, Luhmann's systems theory lays important theoretical foundations for understanding how psychological and sociocultural processes interact and produce social evolution. Communication is a process that occurs only in social systems and never inside an individual's mind. Psychic systems and social systems operate through different processes: the former creates links between thoughts, while the latter links communications. The links between psychic systems and social systems occur through language, as part of a structural coupling that translates thoughts into communications and vice-versa.<sup>454</sup> Nonetheless, each of these systems is operationally closed; their internal operations refer only to communications that occur inside each system, and not to operations that occur in its environment,

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451 See Luhmann, N. (1995a). *Social Systems*. p. 108.

452 See Luhmann, N. (1995a). *Social Systems*. pp. 322-324; Luhmann, N. (2014). *A Sociological Theory of Law*. pp. 31-40.

453 See Luhmann, N. (1995a). *Social Systems*. p. 59.

454 See Maurer, K. (2010). *Communication and Language in Niklas Luhmann's Systems-Theory*. *Pandaemonium Germanicum (Online)*, 16.

such that psychic systems and social systems constitute part of each other's environments.<sup>455</sup> In this sense, social systems are considered autopoietic because their development is possible through the reciprocal relations amongst the intrinsic communications that are selected within the domain of each system and that can only refer to processes that occur in other systems in its own terms.<sup>456</sup>

Two important concepts in systems theory ought to be explored in order to understand their exact meaning to the purposes advanced herewith. The first point to be noticed is that the idea of autopoiesis does not entail that a system is closed within its own environment, but that it observes its environments according to its own criteria. Its operations can be directed to itself (self-reference) or to its environment, including other systems (hetero-reference), but always according to its internal communicative standards.<sup>457</sup> When a social system observes another, it translates the communications happening inside that system according to its own criteria. An economic transaction is read by the legal system as a contract backed by legal rules, while the economic system understands the same transaction according to the exchange advantages for the involved agents.

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455 As Gunther Teubner says: "Socio-biologists insist that social evolution is biological. They thus fail to take account of the autonomy of social systems and their evolution. As we saw in chapter 3, it is the essence of social and legal autopoiesis that society and law represent emergent systems of communication. Although these have an organic and psychic basis, they are self-referentially closed in their mode of operation. Biological evolutionary mechanisms can thus have no direct impact on social or legal development. Socio-legal evolution, defined as the interplay between variation, selection, and retention, can occur only if the corresponding mechanisms have emerged within the communicative sphere. The unit of social or legal evolution is neither the human individual nor a grouping of individuals nor a 'selfish' gene, but society or law itself as a system of communication. This does not, of course, exclude the possibility that genuine biological evolution and genuine social evolution might reciprocally influence each other. However, any such influence can be conceived only as a reciprocal relationship between autonomous systems which evolve according to their own logic. It is not 'biocultural' evolution in the sense of the biologically determined social development described by Biühl. What we are talking about here is co-evolution." In Teubner, G. (1993). *Law as an Autopoietic System*. p. 52.

456 See Teubner, G. (1993). *Law as an Autopoietic System*. pp. 29-30.

457 As Luhmann says: "(...) the system can use its own operations to distinguish itself from its environment. It can communicate about itself (about communication) and/or about its environment. It can distinguish between self-reference and hetero-reference, but it has to be done by an internal operation." In Luhmann, N. (1995b). *Why Does Society Describe Itself as Postmodern?* *Cultural Critique*(30), 171-186.



The other important concept is interpenetration. When a psychic system observes communications happening within a social system, it translates its meanings to patterns understandable in terms of consciousness. Even if psychic systems do not participate in communication, they are connected to it because both consciousness and communication are based on *meaning* as a unit of operation. As a result, psychic systems and social systems, while being both autopoietic in nature, can be causally connected through interpenetration. Meaning enables consciousness to maintain its internal coherence (self-understanding), but it also enables communication, as participants perceive the received information, converting and processing it again as meaning.<sup>458</sup>

Luhmannian systems theory can provide a solid foundation for an evolutionary sociological theory that *seriously* takes into account the role of psychological processes as a precondition for the evolution of social systems precisely because he acknowledges interpenetration as an important process, causally connecting both psychological and social levels. As a result, systems theory provides a sophisticated account about the relationship between individual psychology and society. To be fair to his legacy, Luhmann does not hold that social evolution is completely independent of psychological processes, but that mental operations can only affect what happens in society through the conversion of thoughts into communications via language – a structural coupling that bridges the gap between minds and social systems – and other forms of interpenetration and operative couplings<sup>459</sup>.

As a result, any influence of psychological processes must be understood, from a sociological perspective, in terms of constraints and background noise.<sup>460</sup> But these constraints pose important questions for the understanding of social organization. There is much evidence, gathered from different fields – anthropology, ethnology, sociobiology, evolutionary biology, sociology, population genetics, and behavioral ecology – that support the claim that social structures actually reflect many features of our

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458 In Luhmann, N. (1995a). *Social Systems*. p. 219.

459 See, e.g., Luhmann, N. (1995a). *Social Systems*. p. 219; Luhmann, N. (2004). *Law as a Social System*. pp. 381-382.

460 Noise is to be understood here in a technical sense, as unorganized information. See Luhmann, N. (1995a). *Social Systems*. p. 83.

minds.<sup>461</sup> This is not a coincidence, but a consequence of evolutionary constraints imposed by our minds in the process of sociocultural evolution.

It is clear that Luhmann's theory opens the possibility for such a reading of how psychological processes interpenetrate and, by doing so, enable operations at higher social levels. Luhmann himself did not pursue this path, but he left the door open for such a theoretical attempt. And, as I will argue, following this road seems to fit well with the theoretical framework of gene-culture coevolutionary theory.

Luhmann's theory is a true advancement in comparison with other sociological theories concerning the way it sees the relationship between mind and society. Durkheim, Mead, Boas and others adopted the separation thesis, according to which social processes are almost entirely autonomous vis-à-vis mental operations.<sup>462</sup> Luhmann also accepts the autonomy of social systems but, unlike them, he acknowledges that psychological processes coevolve with social systems and, as a result, impose constraints on them (and are constrained by them as well).

The empirical evidence is clearly stacked against the separation thesis and in support of the claim that our minds impose constraints on human societies. As discussed above, human minds have some innate knowledge regarding what a society should be. The evidence presented thus far shows that the human mind expects to live in a social world where there are strong ties among genetically related individuals, free riders are punished, reciprocal relations are respected, cooperation is mediated through the identification of in-group members (who deserve to be trusted), and out-groups (who are to be treated suspiciously). We also display a sense of fairness based on inequity aversion and suspicion towards those who try to climb the ladder of social rank to exploit others. Not surprisingly, all human societies display these features to a certain extent. If social systemic

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461 See, e.g., Barkow, J. H., Cosmides, L. and Tooby, J. (Eds.). (1992). *The Adapted Mind*; Boehm, C. (1999). Hierarchy in the Forest; Boyd, R. and Richerson, P. J. (2007). Culture, Adaptation, and Innateness. In Carruthers, Laurence and STICH (Eds.), *The Innate Mind: Culture and Cognition* (Vol. 2, pp. 23-38). Oxford: Oxford University Press; Bloom, P. (2010, May 01). The Moral Life of Babies; Bloom, P. (2013). Just Babies; Cochran, G., Hardy, J. and Harpending, H. (2006). Natural history of Ashkenazi intelligence. *Journal of biosocial science*, 38(5), 659-693; Cochran, G. and Harpending, H. (2009). *The 10,000 Year Explosion: How Civilization Accelerated Human Evolution* (Kindle ed.). New York: Basic Books.

462 See Tooby, J. and Cosmides, L. (1992). The Psychological Foundations of Culture. In Barkow, Cosmides and Tooby (Eds.), *The Adapted Mind*. Oxford: Oxford University Press. pp. 22-43.

operations were really so independent from mental operations, we should expect far more diversity among societies than we actually have.

One might object to this statement by maintaining that human societies do display far more diversity than would be expected if they depended on innate and universal features of our minds. However, that would not be a particularly good response. According to gene-culture co-evolutionary theory, the universal features of our social mind (the principles of our universal moral grammar) are entangled with particular cultural elements of each society. Additionally, this theory allows substantial room for independent sociocultural evolution, which might lead different societies to follow divergent evolutionary paths. However, the breadth of diversity that might emerge from the separation thesis would be far greater than what we actually have. We should expect societies in which there would be no punishment for violating social norms, where people cooperated more with outgroups than with their peers, and where individuals would prefer to be treated unfairly than to receive their fair share for their efforts. Notably, there is no evidence about the existence of these types of societies, and if the absence of such evidence is not a definitive proof to support the empirical truth of the gene-culture coevolutionary theory, it at least backs the claim that the reproduction of social systems does depend on certain innate features of our psychology.

Of course, it would be naïve to accuse Luhmann of not having moved in the proposed direction. The very hypothesis of the universal moral grammar was still being developed in 1998, the year that Luhmann died. Furthermore, much evidence about gene-culture coevolutionary processes has been discovered in the last decade. Multilevel selection theory, which lays much of the foundations required for this theoretical framework, has been accepted as a feasible possibility only in recent decades. Neurological evidence regarding the dependence of our moral behavior on specific brain processes was also not uncontroversially available to him.

Even if this does not mean that Luhmann's theory should be abandoned, it does indicate that it must account for these facts. In this section, I propose three main ways in which Luhmannian sociology should be adjusted to be compatible with the new scientific knowledge about the relationship between mind and society. It must incorporate the following as major tenets of systems theory: (i) the understanding that minds impose constraints on the evolution of cultural systems; (ii) a micro-sociological theory of the evolution of culture; and (iii) multilevel selection. Finally, I will discuss Luhmann's account of Darwinian theory, with the purpose of reconciling his autopoietic vein with a stricter Darwinian approach. Luh-

mann himself had some intuitions about these themes, as demonstrated by certain isolated discussions in his writings. Thus, in some sense, the task is to further develop those intuitions and not to debunk his sociological framework, which has significant value for social theory.

### 3.2.2.1. The Biological Constraints of Cultural Evolution

The first task is to incorporate the fact that minds impose constraints on the evolution of cultural systems. Luhmann himself used the concept of constraint to account for the fact that different social systems impose reciprocal limits on the evolutionary possibilities of one another. Whenever a new system is formed, it constructs a boundary between itself and its environment, constraining its own possibilities for further evolution. It gains deepness but loses scope and width. When law differentiates itself from morality, religion and politics, these domains escape the realm of legality, but law itself gains more possibilities for internal evolution and for increasing its own complexity. New systems pave the road to new differences and constraints, increasing complexity through the means of differentiation.<sup>463</sup>

Two kinds of differentiation can be mentioned. Internal differentiation occurs when similar systems differentiate from similar ones – as it occurs when society differentiates itself into social systems such as law, religion, science, economy, among others. Each system creates a boundary between itself and the other social systems, thus limiting its own evolutionary possibilities. They are similar because they reproduce through communication; thus, their differentiation is built onto comparable semantic patterns. In Luhmann's words, internal differentiation within a particular system "connects onto the boundaries of the already-differentiated system and treats the bounded domain as a special environment in which further systems can be formed."<sup>464</sup>

External differentiation follows systemic emergence from different ontological systems, producing distinct kinds of autopoiesis. Luhmann distinguishes among three different types of autopoietic systems: living systems, psychic systems, and social systems. Living systems (brains, cells, organisms, etc.) operate upon media that exist in the natural world, such as pressure, temperature, proteins, and other living beings. Psychic systems oper-

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463 In Luhmann, N. (1995a). *Social Systems*. p. 189.

464 See Luhmann, N. (1995a). *Social Systems*. p. 189.

ate through consciousness, which consists of all thoughts and feelings that have meaning for an individual. Finally, social systems operate by means of communication. Each of the mentioned systems emerged from other ontological systems, being structurally coupled to them. While social systems are structured upon psychic systems, minds are erected over living systems, which are sustained by natural world processes.<sup>465</sup>

The distinction between internal and external differentiation processes leads us to ask how social systems could emerge from psychic and living systems. This is an evolutionary question that demands the type of explanation sketched out in the first two sections above. However, this response entails enormous consequences for systems theory: it must acknowledge that the very autopoietic logic of social systems does depend on psychic processes.

When considering internal differentiation among social systems, Luhmann accepts that different systems impose reciprocal constraints on one another's evolutionary possibilities. The evolution of law changes the environmental selection dynamics regarding religion, politics, economy and other social systems, limiting and blindly directing their evolution (and vice-versa). Luhmann also distinguishes between two processes of differentiation: horizontal and hierarchic. When systems are horizontally differentiated, they impose constraints on other systems via the contact between each system's boundaries. Hierarchical differentiation, on the other hand, imposes another type of constraint, which is akin to a containment process. A system that differentiates itself into two subsystems imposes constraints on each one of them in the sense that the internal logic of each is dependent on the parent system's logic. When law differentiates itself into legal subsystems (such as trade law, criminal law, or environmental law), each subsystem has both an internal logic that maintains its differentiation, and an abstract and shared logic that identifies them as legal subsystems.

The type of constraint that psychic systems impose on social systems is akin to the limits imposed through hierarchical containment. However, while containment implies that a social system and its subsystems share the same means of reproduction – communication –, the constraints imposed by psychic systems on social systems are of a different order. As Luhmann says, psychic systems cannot communicate with social systems; the

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465 See King, M. and Thornhill, C. (2006). Niklas Luhmann's Theory of Politics and Law. p. 4; Luhmann, N. (1986). The Autopoiesis of Social Systems. In Geyer and van der Zouwen (Eds.), *Sociocybernetic Paradoxes*. London: Sage. p. 172.

only transitive connection between them can only be established through language, which converts thoughts into communications and vice-versa. Luhmann is correct in positing that language is a structural coupling between psychic systems and social systems.<sup>466</sup> But we must also establish a second distinction, differentig between culture and society. As discussed above, conceiving of social systems as 'social' is misleading because it undermines the distinction between 'culture' and 'society'.<sup>467</sup> We should then reformulate the concept of social system as sociocultural system – a system which encompasses cultural transmission embodied within a particular social structure.<sup>468</sup> And this is an important distinction because there are many other animal species that engage in social behavior without the emergence of 'social systems'. Ants, bees and termites live in highly complex societies, vampire bats engage in reciprocal relationships and chimpanzees have a very complex social life in which most of their communitarian behavior is fully regulated through innate dispositions.

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466 It is important to highlight that language is not the only means through which psychic systems and social systems relate to each other. Psychic systems also interpenetrate social systems, being a precondition for their very existence. As Evan Knodt states, "no social system could exist without the environment of conscious systems." In Luhmann, N. (1995a). *Social Systems*. p. xxvii There are also operative couplings within and between different systems. See Luhmann, N. (2004). *Law as a Social System*. pp. 41-42.

467 Professor Marcelo Neves, a former Luhmann student and a known specialist in his school of thought, has sustained that there is a logical fallacy of ambiguity here. According to him, I only changed the use of the terms 'culture' and 'social' in order to criticize Luhmann because he does not use my proposed meaning of these concepts. My argument goes deeper than that, though. My claim is that it is not possible to conflate culture within the social structure without losing a useful distinction. In her foreword of Luhmann's *Social Systems*, for instance, Eva M. Knodt categorically states that the German sociologist conceptualizes of "the social in terms of a meaning-processing system of communication." See Luhmann, N. (1995a). *Social Systems*. p. xxix Social systems are "meaning systems," in this sense See Luhmann, N. (1995a). *Social Systems*. p. 37. Here I follow W. G. Runciman's distinction between the social and cultural domains of evolutionary selection, which highlights the fact that 'social' relates to the *normative structure* that underlies the process of 'cultural' evolution, which, in Luhmannian terms, would be related to *meaning*. Luhmann is aware of this, but he conflates both domains ('normative structure' and 'meaning') in the concept of 'social system'. See Runciman, W. G. (2009). *The Theory of Cultural and Social Selection*. Cambridge (UK): Cambridge University Press.

468 I will return to this point in subsection 3.2.2.4 (Luhmann's Darwin: Reconciling Autopoiesis and Evolution).

In each of these cases, the structural coupling between individual psychology and social reality was mediated not through language but through individual minds. My point is not that one mind connects to another in these cases, but that social problems can be solved by resourcing to innate dispositions nested within the mind of each individual as a result of a natural selection of behavioral dispositions. A bee, a vampire bat or a chimpanzee can engage in complex social behaviors not because they can create an autonomous and autopoietic system through language, but because they can solve double contingency by using a mental heuristic that enables them to accurately interpret cues from their environment (including their social world). As a result, their social world is ontologically constrained by their minds.

By mixing up the concepts of 'social' and 'cultural', Luhmann could not see this difference. And the same happens in human sociability: our ancestors became cultural beings because the distinction between the social and cultural domains turned out to be stringent. Our ancestors' social lives were completely determined by their innate psychological dispositions (their universal moral grammar). Their minds were the structural coupling that enabled a bridge between their biology and the social world – which is pretty much what happens in other animal societies. However, when cumulative culture became a salient adaptation that solved the problem of social life in large groups, the psychic systems had to cope with the complexity of culture in a different way. Cultural evolution imposed quicker changes than those previously seen in social environments; our ancestral minds were innately equipped with dispositions to address stable societies, not with rapid change. If a universal moral grammar could bridge the gap between psychic systems and stable social environments, it is a flawed and outdated solution to cope with the increasingly changing cultural world. Language was selected as a useful adaptation to bridge this gap – not between psychic systems and society, but between minds and culture.

As Luhmann believed, language is the means through which social communications is linked with individual minds, and can affect or be affected by them. However, this is only part of the necessary explanatory scheme because this proposition only explains how psychic systems cope with culture, while remaining blind to the moral grammar that is necessary for social life. In this sense, it is the interplay between innate mental dispositions and language that fills the gap between biology, culture and society. If the gene-culture coevolutionary hypothesis is correct, our universal moral grammar has become sensible to particular aspects of local cultures. Thus, it differentiated itself between a core of universal principles and a multi-

tude of culturally adapted normative assumptions (parameters). Our primate ancestors could rely only on universal principles because their minds did not have to cope with the problem of cultural diversity. In the last 200,000 years, we became capable of living in cultural systems because our minds bridged the gap between an innate psychology and a cultural life-world. Universalism/particularism are two codependent and pervasive sides of the same coin in the human social experience.

As a result, human psychic systems impose ontological constraints on cultural evolution. First, the structures of human societies must be compatible with the innate social expectations of our minds. Otherwise, psychological distress would lead to social disruption. Even if cultural variants could describe an infinite amount of possible societies, only a small set of these would be compatible with our mental dispositions because of the decoupling between the cultural and social domains; language can describe an impossible social state of affairs that is not a workable possibility.

#### **3.2.2.2. Systems Theory and Microsociological Evolution**

The second way in which Luhmannian sociology must be adjusted is related to the dependence of cultural evolution on psychological processes. Cultural evolution relies on psychological dispositions related to language acquisition and cultural transmission. As discussed above, the transmission of cultural variants obeys certain rules that are nested within our psychology, which affects the probability of selecting some cultural traits instead of others. For this reason, we could hypothetically conceive of a society where individuals do not take care of their children or where individuals kill their peers indiscriminately, but we cannot find a single society where this does actually happen. These cultural standards would be so incompatible with our innate social predispositions that their diffusion would be highly improbable.

In Luhmann's theory, social systems are autopoietic, which means that the legal system – as any other social system – is circularly structured. It is self-referential because it can be observed as a system of rules in which each of its elements refers to legal rules in order to establish its validity. When law differentiated itself from other social systems, its validity became independent of extra-legal features of the world (i.e., natural law or morality). It is also self-productive because it produces its own components. Although political, moral, religious and economic factors affect the creation of legal rules, a particular normative standard does not become a



legal rule as a result of the influence of other social systems, but because it is produced in accordance with other legal rules (e.g., the legislative procedure) to become part of the legal system.<sup>469</sup>

Even if Luhmann recognized that social systems coevolved with psychic systems, the reproduction patterns of law are deemed intrinsic to itself (self-reference). This feature of systems theory could lead to a misunderstanding according to which the autopoiesis of a social system makes the system independent of any elements outside itself. If systems theory would claim that, it would confront the entire logic of evolutionary reasoning. When a higher level of reality emerges from a lower one, it remains continuously connected to it through mechanisms that are extrinsic to the higher level. Consider DNA replication as an example. DNA has embedded information on how to build an entire organism from scratch. However, DNA cannot replicate itself from scratch unless under rare and still barely known conditions, such as those that led to the emergence of life. Its information is only useful if it can be translated by ribosomes into proteins, and DNA can only reproduce itself because it needs external structures. This process allows the connection of living systems to chemistry, and it depends on structures that are outside DNA, such as ribosomes and tRNA.<sup>470</sup> The entire biological system can be considered autopoietic but only because its reproduction depends on a connection to structures that are outside itself and that have also been selected in an evolutionary process.<sup>471</sup> These structures are part of the autopoietic chain because their existence also depends on DNA, but they are also outside the chain because

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469 In this respect, one could evoke Herbert L. Hart's thesis regarding the relationship between primary and secondary rules. Primary rules govern conduct and secondary rules allow for the creation, modification, extinction and adjudication of legal rules – as well as for the recognition of a specific normative pattern as a legal one. See Hart, H. L. (1994). *The Concept of Law*. pp. 79-99. In addition, Luhmann refers to self-observation as another feature of autopoietic systems, but the objectives of this article urge us to focus on self-reference and self-production. See Luhmann, N. (1995a). *Social Systems*. p. 301.

470 Frank, J. and Spahn, C. M. T. (2006). The Ribosome and the Mechanism of Protein Synthesis. *Reports on Progress in Physics*, 69(5), 1383-1417.

471 In the same fashion, Geoffrey Hodgson and Thorbjørn Knudsen do not think that self-organization theories – such as autopoiesis – are a real alternative to Darwinian evolution. ("Self-organization may be necessary to explain the emergence of a number of complex phenomena, such as the formation of new species in nature. But, in the absence of selection, there is little chance of the development of increasingly complex structures."). In Hodgson, G. M. and Knudsen, T. (2010). *Darwin's Conjecture*. p. 52.

they are structures necessary to the reproduction of DNA, which is the paradox of autopoiesis.

Systems theory accounts for this kind of phenomena by referring to the concepts of penetration and interpenetration. The former concept accounts for the situation in which one system "makes its own complexity available for constructing another system."<sup>472</sup> As a result, one system enables the very possibility of constructing another system. In this sense, social systems presuppose psychic systems as a given reality, insofar as no social system can exist without psychic systems. The existence of psychic systems is a necessary precondition for the emergence of social systems. In interpenetration, the process occurs reciprocally: both systems enable one another: "the receiving system also reacts to the structural formation of the penetrating system, and it does so in a twofold way, internally and externally."<sup>473</sup> As a result of interpenetration, both systems develop increased interdependencies and also greater degrees of freedom, enabling further evolutionary possibilities. This is precisely what happened in the course of gene-culture coevolution; the evolution of culture fostered the evolution of a much more complex mind, capable of coping with a progressively more intricate cultural background. The coevolutionary process resulted in both more complex minds and cultures and, later on, in evolved social systems.

Although Luhmann's theory acknowledges the relevance of both penetration and interpenetration in what concerns the relationship between psychic systems and social systems, it has not delved into the details of how it has happened. As a result, Luhmannian systems theory can conceive of autopoietic social systems without giving much attention to low-level explanations of how systemic reproduction occurs and without paying sufficient attention to the microscopic evolutionary level of cultural replication. Even if it recognizes that mind and society coevolved and that there is a structural coupling between them through language, this link always *appears to be* treated as a secondary process in social evolution – even if this is not the case. In systemic approaches, for instance, what matters for understanding law is how courts apply the law, how judges and lawyers argue about the law, how congress enacts new statutes that are incorporated into the law, and how the Constitution links the law with other social systems. Even if penetration and interpenetration between psychic systems and social systems are acknowledged, theorization about them has been scarce – and, as a result, nothing that happens inside the human mind is consid-

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472 In Luhmann, N. (1995a). *Social Systems*. p. 213.

473 In Luhmann, N. (1995a). *Social Systems*. p. 213.

ered as an important part of legal evolution. At best, it is considered a vague and abstract constraint.

Nevertheless, cultural evolution depends on human minds as much as DNA replication relies on structures that are outside itself and that have been naturally selected. To accommodate this point, sociology must incorporate a theory about how cultural evolution actually occurs in the micro level of individual interaction – where the role played by the mind becomes essential. Even if penetration and interpenetration between psychic systems and social systems are acknowledged, theorization about them is still underdeveloped. However, I propose that Richerson and Boyd's approach to cultural evolution offers a theoretical possibility to develop a theory of how interpenetration between psychic systems and social systems occurred in the evolutionary timeline. Their theory links human psychology and cultural dynamics by acknowledging that culture is not only a holistic feature of human sociality but also a micro-evolutionary process based on the social transmission of information, from individual to individual.<sup>474</sup> Culture is retained and evolves in a multilevel process that is related both to biological and cultural fitness. As discussed above, culture is a biological adaptation that helped our ancestors solve many of their environmental and social problems. Memes that made our ancestors so unfit that they could not reproduce would not last for long because their biological substrate (humans) would cease to exist.<sup>475</sup> Early societies that adopted cooperation-favoring memes would have better odds to survive both culturally and biologically because such memes would simultaneously allow for the efficient transmission of culture and for the genetic reproduction of its members.

So, in a sense, culture can be examined as a natural adaptation to be explained through natural selection processes. However, culture is also affected by the way our mind works. In this sense – and systems theorists would agree with this – our psychology is part of the environment of cultural systems (and vice-versa). The fact that our psychology relies on simple heuristics that shape its way to learn and transmit memes to others is an important element to be considered. Thoughts that are so incompatible with the principles of our universal moral grammar would hardly seem attractive to

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474 See Richerson, P. J. and Boyd, R. (2008). *Not by Genes Alone: how Culture Transformed Human Evolution*. p. 5.

475 This does not mean that I disregard the existence of maladaptive cultural traits. Instead, the point is that societies where they are widely spread will face the risk of extinction if the reproductive rate falls below the rate of immigrants.

our minds. As a result, our innate psychology would hardly select them as potential candidates to be transmitted to social systems through language.

That is one of the reasons why features such as parental care, nepotism, reciprocity, free-rider punishment, and inequity aversion – which comprise much of our universal moral grammar – are so pervasive in human societies. Our psychology stochastically selects thoughts that are compatible with these moral assumptions. This operation occurs even before these thoughts are transmitted to social systems through language. Of course, there is also an influx of information from social systems to our minds, and it is processed through our innate psychology. Culture likely affects the functioning of our psychology, but not to the point that the latter is completely molded by the former. Durkheim was plainly wrong: individual nature is not – as he believed – merely the indeterminate material molded and transformed by the social factor. But, to acknowledge this fact, we must look at the micro-sociological aspects of cultural evolution.

### 3.2.2.3. Systems Theory Must Take Multilevel Selection Processes into Account

The third way in which systems theory must be reformed is a consequence of the need to take social microdynamics into account. Any evolutionary theory of culture must rely on a multilevel selection procedure if it is to be used to really explain social evolution. In fact, Luhmann himself anticipated this in many ways although he has not developed its major consequences for systems theory. For instance, he acknowledged that psychic systems and social systems coevolved: "Psychic and social systems have evolved together. At any time the one kind of system is the necessary environment of the other"<sup>476</sup> and "[b]oth kinds of systems emerge by the path of co-evolution."<sup>477</sup>

By acknowledging the coevolution of psychology and social systems, Luhmann suggested a simultaneous evolutionary process between those systems. Nonetheless, mind and culture do not relate among themselves solely on the basis of coevolution. They are also codependent with one another; culture can only be replicated by using minds, and our minds are fully adapted to life in a cultural background. In this sense, much of the evolutionary pressures they face are imposed on both systems and demand

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476 See Luhmann, N. (1995a). *Social Systems*. p. 59.

477 See Luhmann, N. (1995a). *Social Systems*. p. 98.

integrated solutions in both the cultural and psychological systems in the way predicted by the gene-culture coevolution theory. The example of the evolution of cooperation discussed above can be understood as such: cultural systems faced an evolutionary pressure that demanded more sophisticated solutions to cope with socially complex environments, and this process has also selected minds suited for the task of coping with increasingly elaborated cultural frameworks. However, minds are not infinitely flexible; they impose constraints on how culture evolves, and those cultural systems that better explore these psychological features for their own benefit are more suitable for evolutionary selection. To fully explain sociocultural evolution, a sociological theory must take into account that these coevolutionary processes are happening simultaneously at each level: (i) the psychological processes that occur in the preselection of particular memes before the linguistic output takes place; (ii) the cultural processes that further select among those preselected memes and intrinsically drive cultural evolution; and (iii) the rebound effect of the selected memes on the evolution of genes related to our psychology.

This multilevel approach highlights another similarity between Luhmannian analysis and memetic theory. In Luhmannian terminology, memes could be understood as the smallest particles of communication. Although memes depend on the way our minds function, they also explore our psychology for their own benefit; memes that do this better replicate themselves more efficiently and thus will spread more quickly in a particular population.<sup>478</sup> Some memes, however, replicate better when they are associated with other particular memes. They can group themselves and, as a group, may reproduce themselves more efficiently than if they were alone. This is what Susan Blackmore calls *memeplexes* or *meme-complexes*.<sup>479</sup> In systemic terminology, a meme should be understood as a particle of meaning. A social system might be conceived of as a *memeplex* – a full body of memes that replicate better as a group than individually and that follows its own evolutionary and developmental logic. Communication can be conceived of as memetic replication, i.e., the process through which a meme replicates itself in a *memeplex*. Here, systems theory can offer much to memetic theory because it enables a better sociological understanding of systemic evolution than memetic theory has done so far.

In this sense, both theories complement each another. On the one hand, memetics explains the microevolutionary processes of cultural evolution

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478 See Dawkins, R. (2006). *The Selfish Gene*. p. 195.

479 See Blackmore, S. (2000). *The Meme Machine*. p. 19.

under a perspective that allows for the interaction between mind and culture; and on the other hand, systems theory focuses on macroevolutionary sociological processes that admit enough circularity to integrate with the microsociological processes of cultural evolution.

In order to incorporate multilevel processes into the theoretical framework of system's theory, another assumption in Luhmann's thought must be adjusted. According to him, sociological theory should stop inquiring the relationship between the parts of a system and the system as a whole and replace the distinction between part/whole by another distinction, system/environment<sup>480</sup> – a paradigmatic shift he believes to have already happened back in the 1950s. Later on, he proposes a further redefinition of this paradigmatic change in sociological theory, based on the incorporation of autopoiesis.<sup>481</sup>

Multilevel selection theories, nonetheless, can incorporate both the insights of the system/environment distinction and the theory of self-referential systems (autopoiesis). In order to do so, they accept a dual-mode two-way causation model, in which the lower ontological layers of the system simultaneously affect the higher levels and are constrained by them. Instead of a top-down approach such as the one accepted in Luhmann's theory, it provides a coevolutionary model in which all layers of the system are reciprocally and causally implicated, similarly to Sawyer's approach. This is not to say that we should abandon the distinctions between part/whole and system/environment, or the level of analysis proposed by self-referential systems theory, but multilevel selection theory can account for all these reference models without losing its internal coherence.

One inspiration to construct such a theoretical model would be to integrate Luhmann's theory with Jonathan Turner's *Theoretical Principles of Sociology*. In a three-volume masterpiece, Turner aims to formulate a grand sociological theory based on a multilevel analysis of social reality. Each volume is dedicated to the evolutionary dynamics of a specific social level: (i) *macro-level social reality*, composed of socially differentiated systems, whole societies and inter-societal systems; (ii) *meso-level social reality*, which con-

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480 According to Luhmann: "Traditional theory conceived complex systems as 'wholes' made out of 'parts.' The basic idea was that the *order* of the whole accounts for qualities the isolated parts could never possess on their own. Recent systems theory, as I see it, has abandoned this traditional approach by introducing an explicit reference to the environment." In Luhmann, N. (1982). *The Differentiation of Society* (Holmes and Larmore, Trans.). New York: Columbia University Press. p. 257.

481 See Luhmann, N. (1995a). Social Systems. p. xxi.

cerns *corporate units* such as businesses, organizations, and communities; and *categoric units*, which differentiate individual members by making status-identifying distinctions (e.g., gender, social class, ethnicity); and (iii) the *micro-level social reality*, composed of individual interactions, either through *focused face-to-face encounters* in which individuals interact directly with each other, or through *unfocused interactions*, which occurs when individuals act through the social space without maintaining direct contact, but assuming the other as a social reference.<sup>482</sup>

The *Theoretical Principles of Sociology* is part of an even more ambitious project that seeks to explain human sociality in a two-staged scenario. Firstly, in his *On the Origins of Societies by Natural Selection*, Jonathan Turner and Alexandra Maryanski propose a naturalized theory of the emergence of human societies that takes into account the evolutionary links between the social structure of the great apes (gorillas, bonobos, orangutans and chimpanzees) and the structure of human societies, assuming that our cognitive abilities that lay the foundations for complex social structures have evolved from the common ancestors with the other great apes.<sup>483</sup> In this book, Turner and Maryanski provide the evolutionary foundations of microdynamic processes that depend on the structure of human emotions. According to them, some human emotions create the necessary conditions for the emergence of the meso-level and the macro-level of social reality: (i) *enhancement of positive emotions* that create emotional bonds with other individuals, social organizations and cultural symbols; (ii) *interpersonal attunement*, the human capacity to create social bonds and coordinate actions through mutual understanding and role-playing; (iii) *rhythmic synchronization* and *rituals*, which enhance group solidarity through emotional bonding in cultural rituals; (iv) *exchange of valued resources*, based on an innate capacity for reciprocal interactions; (v) *positive/negative sanctions*, which strengthen social bonding between individuals and their communities; (vi) *symbolizing and totemizing social relationships*, which is a capacity to moralize relationships and create a marked distinction between loyalists and outsiders.<sup>484</sup> This is a *diachronic* perspective that intends to explain

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482 See Turner, J. H. (2010a). *Theoretical Principles of Sociology, Volume 1*. New York: Springer; Turner, J. H. (2010b). *Theoretical Principles of Sociology, Volume 2*. New York: Springer; Turner, J. H. (2012). *Theoretical Principles of Sociology, Volume 3*. New York: Springer.

483 See Turner, J. H. and Maryanski, A. M. (2008). *On The Origin Of Societies By Natural Selection*. Boulder: Paradigm Publishers. pp. 65-78.

484 See Turner, J. H. and Maryanski, A. M. (2008). *On The Origin Of Societies By Natural Selection*. pp. 82-87.

how, in evolutionary time, complex social structures emerged based on the biological evolution of our emotions.

Secondly, Turner's *Theoretical Principles of Sociology* adopts a *synchronical* approach, in which he focuses on explaining how the meso-level and macro-level social realities emerge from microdynamic interactions. Here, biological evolution is taken for granted as a background assumption in a scenario where sociocultural evolution takes place.<sup>485</sup> Turner presents his work as an evolutionary approach to social theory, and elaborates an explanation of social change based on mechanisms that operate on each level and, as a result, select specific social structures.

The first level of analysis proposed by Turner is *microdynamics*, and it is based on interactions among individuals. Based on Erving Goffman, Turner classifies these interactions in a continuum between focused and unfocused encounters – the former being episodes where individuals are interacting face-to-face with other individuals, whereas the latter occurs when individuals are aware of each other's presence but interact without face-to-face engagement.<sup>486</sup>

Encounters are embedded within meso-level structures (corporate units) and their culture (categoric units) – defined as a "symbol system created by actors to coordinate and legitimate activities."<sup>487</sup> Corporate units are social structures displaying division of labor and organized to achieve established goals, and categoric units are categorizations used to distinguish persons – such as age, gender, race, affiliation, income, among others. Corporate units are also embedded within macro-level structures (institutional domains, such as economy, religion, politics, law).

Although culture is transmitted between individuals<sup>488</sup>, being mainly a microdynamic process, communication is affected both by top-down and bottom-up events. Norms, values and routines of corporate units constrain and structure interactions at the micro-level (top-down), but individual interactions can also influence the culture of organizations at the meso-level (bottom-up).<sup>489</sup>

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485 As discussed in chapter 2, this is incompatible with the tenets of the dual inheritance theory because it denies that social structures and culture affect the course of human biological evolution.

486 See Turner, J. H. (2010a). *Theoretical Principles of Sociology*, Volume 1. p. 4.

487 In Turner, J. H. (2012). *Theoretical Principles of Sociology*, Volume 3. p. 216.

488 See Turner, J. H. (2010a). *Theoretical Principles of Sociology*, Volume 1. p. 50.

489 See Turner, J. H. (2010a). *Theoretical Principles of Sociology*, Volume 1. p. 49.



Encounters, in Turner's perspective, are the material foundation of the meso and macro realms of social reality.<sup>490</sup> In time, particular combinations of encounters can affect the structure and the culture of meso structures and, later, affect macro structures. Eventually, changes in microdynamics can lead to an important reshaping on the global structure of a society. The organization of anti-slavery movements during the 18<sup>th</sup> and 19<sup>th</sup> centuries, for instance, began with small meetings (encounters) which spread to philosophic discourse and later on, to the political domain (mesodynamic structure) – and eventually reformed the economic dependence on slave labor, affecting the whole systemic structure. Turner mentions the organization of workers in unions and the fight against discrimination through specific organizations as other examples of this process:

"For example, if workers in particular types of corporate units remain unhappy, they may organize into another type of corporate unit, such as a union or a social movement organization, to change the terms of their embeddedness. To take another example, members of a particular categoric unit, such as one built upon race and ethnicity, may become sufficiently angry at their level of day-to-day treatment by others in encounters that they organize to change the stratification system and the institutional domains that have discriminated against them."<sup>491</sup>

Turner states that microdynamic processes are subjected to specific forces that drive individual encounters: ecological forces, demographic forces, status/role forces, cultural forces, motivational forces, and emotional forces.

The second layer of analysis in Turner's comprehensive framework is macrodynamics. Here, Turner's evolutionary thinking is brought to the foreground. In Turner's account, the ancient human settlements of the Pleistocene were organized in societies where the macro-social realm did not exist. Following evolutionary anthropology (particularly the aforementioned Christopher Boehm's account), he states that in archaic human societies the only institutional domain was kinship, with sexual and familiar division of labor, organized along two corporate units, the nuclear family and the band.<sup>492</sup> After the settlement of bands, population growth turned out to be possible, leading to pressures for new forms of production, military defense and political/legal regulation. These factors, along with con-

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490 In Turner, J. H. (2010a). *Theoretical Principles of Sociology*, Volume 1. p. 8.

491 In Turner, J. H. (2010a). *Theoretical Principles of Sociology*, Volume 1. p. 8.

492 See chapter 2.

flict between different populations and ecological challenges caused by population growth, have also led to *selection pressures* that caused the evolution of macro-level structures adapted to cope with these problems.<sup>493</sup>

Starting with Herbert Spencer and Émile Durkheim's sociological accounts, Turner develops a theory about how selection operates at the macro-social domain. From Spencer, he proposes two types of selection at the social domain: (i) *Darwinian selection*, based on the idea that, as a population grows, the density of individuals increase and, as a result, there is an escalating process of competition for resources in which the most fit actors and organizations survive and reciprocate; and (ii) *functional selection*, which results not from growth, but from the need to find new solutions to new problems, "forcing actors to develop new sociocultural formations in order to survive in an environment."<sup>494</sup>

According to his reading of Durkheim, the French sociologist conflated those two kinds of selection by assuming that the competition associated with population growth led to functional specialization. Despite this, Turner identifies Durkheim with the Darwinian selection process, stressing the role of competition caused by population growth. Spencerian selection (functional selection), in its turn, is more likely to produce institutional innovation, for being able to respond to new ecological or social challenges.<sup>495</sup>

Spencerian selection operates as a result of evolutionary forces acting on the social domain. The first of these forces is, as previously mentioned, *population growth*. As the populace grows, pressures arise for solutions of coordination problems, including resource distribution and regulation.<sup>496</sup> This situation ignites institutional elaboration and differentiation, thus raising an evolutionary process of functional differentiation. Other important forces are *distribution*, *regulation*, and *reproduction*.<sup>497</sup> The macro-level of social reality results from Spencerian selection operating at the level of populations of individuals and corporate units reacting to the new ecological/social challenges. This level is constituted by *institutional domains*, *stratifica-*

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493 See Turner, J. H. (2010a). *Theoretical Principles of Sociology*, Volume 1. pp. 21-22.

494 See Turner, J. H. (2010a). *Theoretical Principles of Sociology*, Volume 1. p. 24.

495 See Turner, J. H. (2010a). *Theoretical Principles of Sociology*, Volume 1. p. 27.

496 See Turner, J. H. (2010a). *Theoretical Principles of Sociology*, Volume 1. p. 32.

497 See Turner, J. H. (2010a). *Theoretical Principles of Sociology*, Volume 1. pp. 41-104.

*tion systems, societies, and inter-societal systems.*<sup>498</sup> Following Turner's framework, this brief exposition will first elucidate the forces underlying macrodynamic evolution and, then, explore the constitution of the macro-social level.

Along the population, other important forces in the macrodynamic realm are distribution, regulation, and reproduction. In the functional account exposed in the first section of this chapter, these forces would account for the social *needs* referred by Malinowski and Radcliffe-Brown. Turner's perspective, however, is more productive because it starts from an organic metaphor inbuilt in those sociological theories, delimiting the difference between social entities and organisms. Also, by referring to *forces* instead of *needs*, Turner enables the use of the evolutionary framework in a more productive way, by slicing social reality in layers and demonstrating the forces that cause evolutionary change in each social level.

Since the purpose of the book is to focus on the impact of evolutionary theory on the understanding of legal evolution, most of this account will focus on regulation and reproduction. Nonetheless, it is important to state that *distribution forces* refer to the underlying factors affecting the dynamics of distributive infrastructure within a society, including markets and exchange dynamics.<sup>499</sup>

*Regulation* as a force alludes to how actors (individuals or corporate units) are coordinated, constrained and controlled by other actors who are entitled to have the power to do so.<sup>500</sup> Turner differentiates between two dimensions of power: (i) consolidation of its four bases and (ii) centralization.

Consolidation refers to the four bases of political power – coercive, administrative, material incentives and symbolic. The *coercive base of power* refers to the Weberian political power capacity of imposing legitimate physical coercion upon others. Coercion must be centralized in a few actors in order to be effective, since "the more widespread the distribution of coercive capacities in non-governmental actors across a population, the more tenuous is the basis of coercive power."<sup>501</sup> As Weber, Turner also assumes that political power cannot count solely on coercion; it must be

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498 See Turner, J. H. (2010a). *Theoretical Principles of Sociology*, Volume 1. pp. 105-332.

499 See Turner, J. H. (2010a). *Theoretical Principles of Sociology*, Volume 1. p. 67.

500 See Turner, J. H. (2010a). *Theoretical Principles of Sociology*, Volume 1. p. 84.

501 See Turner, J. H. (2010a). *Theoretical Principles of Sociology*, Volume 1. p. 85.

based on a legitimate basis, otherwise resentments can overcome the political order.

The second basis of power consolidation relates to *administrative power*, i.e., the spread of power through corporate units that implement the political decisions concerned. Different social structures depend on distinct kinds of administrative power, ranging from more authoritarian ones, in the cases of dictatorships or highly stratified societies, to more democratic ones, such as in the constitutional democracies where power is diffuse and exerted through units that are themselves monitored by others, as it happens in the institutional separation of powers.<sup>502</sup>

The third basis of consolidation refers to the *material incentive base of power*, or the incentives used to punish or reward regulated behavior, as it happens when a government gives tax incentives to businesses in order to reduce the unemployment rate. The fourth feature refers to the *symbolic base of power*, or the symbols that legitimate the use of power, such as moral codes, consensus over values and ideologies.<sup>503</sup>

In Turner's account, the effectiveness of power consolidation to respond to selection pressures depends on the degree of consolidation in *all* four bases of power.<sup>504</sup> A highly consolidated center of power demands that political power is capable of imposing coercive measures through political administrative units; is capable of incentivizing certain behaviors through the use of material incentives; and is symbolically legitimate. In order to respond to an economic crisis, for instance, the political power must be able to redirect material incentives in order to overcome the economic challenge, often relying on its symbolic legitimation and coercive power.

The second dimension of power is *centralization*, which usually results from consolidation itself. Legitimizing symbols, for example, are usually directed to the administrative units competent for exerting coercive measures and manipulating material incentives in order to promote the desired behavior.

Besides regulation, another important force in the macro-social realm concerns reproduction, which is a feature needed in any evolutionary approach but that has been so far unsatisfactorily theorized. What do we mean when we say that societies reproduce? Unlike biological entities, social units (usually) do not produce offspring in any meaningful sense. The

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502 See Przeworski, A. (2010). Democracy and the Limits of Self-Government. pp. 125-145.

503 See Turner, J. H. (2010a). Theoretical Principles of Sociology, Volume 1. p. 87.

504 See Turner, J. H. (2010a). Theoretical Principles of Sociology, Volume 1. p. 88.

cases where offspring are produced are exceptions, as it happened with the Greek colonies, founded due to the growth of the population in the city-states, or as it happens nowadays in businesses whose management model is based on franchises.

According to Turner, reproduction operates at two different levels. The first level refers to the reproduction of the biological basis of human societies – human biological reproduction as such. The second level is related to the socialization of individuals in the symbolic systems necessary for their inclusion in social structures and to the regulation of socio-institutional relations.<sup>505</sup> In this sense, reproduction is related to the *maintenance* of structural stability at the macro-level, based on the cultural *reproduction* occurring at the lower levels. It is no surprise that Turner explicitly refers to Dawkins and his proposed memetic transmission as the foundation of social reproduction. The reproduction of social structures is maintained through individual interaction. As relevant cultural information (memes) is disseminated, members of the organization learn how to behave as expected, maintaining the whole social structure functional.<sup>506</sup>

The institutional basis of reproduction shifted alongside functional differentiation processes. At first, hunter-gatherers organized social reproduction through parental education and the transmission of tribal customs across generations via oral tradition. As societies became more complex, knowledge became specialized in distinct institutions, such as economy, law, politics, religion, among others. As a result, each institutional domain developed distinct educational methods to formally educate its members within its own internal culture, but a new institutional domain arose as well, with the purpose of transmitting much of the cultural toolkit to the subsequent generations: education.<sup>507</sup>

The forces of distribution, regulation, and reproduction affect the macro-level structures within a society, influencing the dynamics of its elements – the institutional domains.

The *Institutional domains* are close to the social systems in Luhmannian sociology.<sup>508</sup> They are defined as "sets of corporate units engaged in activities that resolve problems of adaptation facing a population; and like all

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505 See Turner, J. H. (2010a). *Theoretical Principles of Sociology*, Volume 1. pp. 99-100.

506 In Turner, J. H. (2010a). *Theoretical Principles of Sociology*, Volume 1. p. 99.

507 See Turner, J. H. (2010a). *Theoretical Principles of Sociology*, Volume 1. pp. 100-101.

508 Notice, however, that the concepts of institutional domain and social system are not the same. Social systems include interactions and communications outside

structures that have evolved as adaptive responses, they represent efforts to deal with selection pressures on populations."<sup>509</sup> Notice that institutional domains, like social systems, are not corporate units, but a *set* of corporate units facing specific problems. In this sense, they are modular, being responsible for coping only with problems related to their domains, such as economy, politics, law and religion. As institutional domains differentiate from one another, they develop their distinctive *culture*, based on the sharing of a *generalized symbolic media* specific to that system (a point explicitly derived from Luhmann's social theory<sup>510</sup>), an *ideology* through which values are spread through the corporate units and *institutional norms* that embody generalized expectations on how actors should behave.<sup>511</sup>

New institutional domains emerge because the micro- and meso-level structures (individuals and corporations) have to deal with new selection pressures resulting from the environment. What counts as environment is quite broad, including internal forces (population growth or even the emergence of new institutions that can bring about new challenges to existing structures) and external forces (such as war or ecological relations between societies).<sup>512</sup> As a result of these novel selection pressures, a new institutional domain emerges with its own culture (generalized symbolic media) and corporate actors.

Turner's explanation of the differentiation process is almost Luhmannian. In his perspective, when a new institutional domain emerges, it gains autonomy and creates boundaries that isolate its internal logic from other domains.<sup>513</sup> The process of institutional differentiation comes with an increasing necessity of integration of the new social systems. According to Turner, institutional domains can be integrated via two mechanisms: *cultural integration* and *structural integration*. Cultural integration arises as a process of containment, similar to the aforementioned process of hierarchical differentiation between psychology and social systems. When an institutional domain differentiates itself from an already existing domain, its internal culture, albeit autonomous, is constrained by the preexisting structures. As a result, the culture of novel social systems is integrated

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corporate units. Nonetheless, for the sake of the argument, I will treat both as synonyms, in the wider sense adopted by Luhmann.

509 See Turner, J. H. (2010a). *Theoretical Principles of Sociology*, Volume 1. p. 13.

510 See Turner, J. H. (2010a). *Theoretical Principles of Sociology*, Volume 1. p. 37.

511 See Turner, J. H. (2010a). *Theoretical Principles of Sociology*, Volume 1. pp. 116-121.

512 See Turner, J. H. (2010a). *Theoretical Principles of Sociology*, Volume 1. p. 37.

513 See Turner, J. H. (2010a). *Theoretical Principles of Sociology*, Volume 1. p. 106.

within the culture of the broader society, which works as a meta-cultural basis of integration.<sup>514</sup>

Here, too, there is a coevolutionary process in place. As new systems arise, they are not only constrained by the background of preexisting cultural information, but they also change the meta-culture to which they were adapted at first, imposing new challenges to already existing institutions.<sup>515</sup> As a result, societal-level culture is redefined in order to be compatible with emerging cultures – in a process similar to what the philosopher John Rawls calls *overlapping consensus*.

Here, it is important to note how Turner uses the concept of culture in his theoretical framework. According to him, as above mentioned, culture is a "symbol system created by actors to coordinate and legitimate activities"<sup>516</sup>. It is a straightforward definition, but one that may leave many doubts concerning its methodological clarity. From a systematic reading of the three volumes of his *Theoretical Principles of Sociology*, it is possible to understand the concept as a multidimensional frame that embodies two different senses.

In the microdynamic level, culture is broadly defined as the result of a meme-like process. Culture is stored in brains as memes (or cultural traits) and transmitted through processes of social transmission such as imitation, and teaching, pretty much in the same sense of Richerson & Boyd's definition (see chapter 2). But culture is more than that; cultural transmission among individuals forms networks that produce culture as an emergent property of both meso- and macro-structures. As a result, the concept of culture adopted by Turner encompasses both *atomistic* and *holistic* concepts of culture. It incorporates phenomena as distinct as meme-like transmission; the Habermasian concept of lifeworld<sup>517</sup>, encompassing the informational background presumed in communication processes; and ideologies, values and the generalized symbolic media of particular institutional do-

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514 See Turner, J. H. (2010a). *Theoretical Principles of Sociology*, Volume 1. p. 123.

515 See Turner, J. H. (2010a). *Theoretical Principles of Sociology*, Volume 1. p. 123.

516 In Turner, J. H. (2012). *Theoretical Principles of Sociology*, Volume 3. p. 216.

517 According to Jürgen Habermas, culture is part of the lifeworld, and is defined as "the stock of knowledge from which participants in communication supply themselves with interpretations as they come to an understanding about something in the world". In Habermas, J. (1987). *The Theory of Communicative Action: Lifeworld and System - A Critique of Functionalist Reason*. p. 138.

mains.<sup>518</sup> This is an informational concept of culture that – in my own view – can be adjusted to the Luhmannian framework, since the German sociologist, albeit not discussing the concept of culture as a foundation for understanding social evolution, understands social systems as meaning systems whose operations are instantiated through *communications*.

Besides cultural integration, there are also structural mechanisms of institutional integration among different institutional domains.<sup>519</sup> The most important of these mechanisms is *structural interdependence*. As units and institutional domains differentiate, their specialization entails the need of maintaining intricate relationships with other domains in order to maintain its internal operations. Part of these relationships entails what Luhmann defines as *structural couplings*, or translations that one social system performs in order to cope with the communications of other systems. Turner highlights, besides these, other kinds of operations between systems that denote structural interdependence. Two examples might clarify this point: a business firm is an *economic* meso-level unit, organized through the symbolically generalized media of *money*; but in order to perform well its own operations, the firm must count on employees who were educated in universities, a meso-level unit from the *education* system. A court operates through the symbolically generalized media of law, but in order to perform its operations it needs *money* to pay for its expenses and also to obtain officials from specialized units of the education system (law schools).

Turner's theory might be an important contribution to systems theory because it works within a part/whole paradigm that is essential to recon-

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518 Similarly, Hodgson and Knudsen define culture as the "shared habits of thought and behavior prevalent in a group, community, or society." See Hodgson, G. M. and Knudsen, T. (2010). *Darwin's Conjecture*. p. 182.

519 I will not discuss here some structural mechanisms proposed by Turner, because they will not be fruitful for the forthcoming discussion, such as *structural segmentation* and *structural differentiation*. The first one refers to the fact that certain institutions segment their internal positions in other similar positions. This is a form of structural integration that is internal to the institutional domain, but the issue at stake is a different one, and it concerns to integration between different domains. The second one refers to the very meaning of institutional differentiation; structural differentiation results from Spencerian selection that leads to the formation of new kinds of units, structured along different principles of organization. See Turner, J. H. (2010a). *Theoretical Principles of Sociology*, Volume 1. pp. 126-128. Other mechanisms that will be overlooked are structural inclusion, structural overlapping and structural mobility. See Turner, J. H. (2010a). *Theoretical Principles of Sociology*, Volume 1. pp. 131-136.



struct Luhmann's evolutionary framework. Without adopting such a distinction, Luhmann's theory remains useful for theoretical discussions at the macro-level, but cannot provide a micro-level/meso-level account through which coevolutionary processes of social emergence can occur. Turner provides an important augment to Luhmann's social systems theory, allowing us to understand Luhmann's evolutionary insight – the subject of the next section.

#### 3.2.2.4. Luhmann's Darwin: Reconciling Autopoiesis and Evolution

In his widely comprehensive theoretical body of work, Luhmann attempts to build a theory of society on many different grounds, ranging from cybernetics (von Foerster) to information theory (Claude Shannon), computer design (Turing and John von Neumann), mathematics (George Spencer-Brown), social systems theory (Parsons), among many others. In a late theoretical shift, he advanced a theory of social evolution which incorporated elements from autopoietic theory (Maturana and Varela) and Charles Darwin's evolutionary theory. I want to focus, here, on this last point.

Reading Luhmann through the lenses of Darwin is an odd enterprise because – as I will attempt to demonstrate – autopoietic theory and Darwinism seem to be somehow contradictory and, despite that, Luhmann tries to build his theory on both theoretical accounts. In this section, I will highlight two major features on which Luhmann's autopoiesis and Darwinism seem to be incompatible *evolutionary* approaches, based on three major points:

- (i) what is the role of Luhmann's concept of restabilization in Darwinian theory? This question brings a related point –
- (ii) the absence of a *fitness-like* concept in Luhmannian theory, which is replaced by the very concept of *restabilization*, is a problematic one when seen through the lenses of Darwinism; and
- (iii) how can autopoiesis be compatible with a variation-inheritance-differential fitness style of explanation if it lacks population thinking?

Luhmann's Darwin is a strange one. As Geoffrey Winthrop-Young notes, "Luhmann, faced with the challenge of 'combining' Darwinian theory with the theory of autopoiesis, provides contradictory assessments of the former."<sup>520</sup> In order to understand why it is odd to combine these theories

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520 See Winthrop-Young, G. (2003). On a Species of Origin: Luhmann's Darwin. *Configurations*, 11(3), 305-349.

into one, it is important to first understand Luhmann's account of Darwin and some elements of Maturana and Varela's autopoiesis theory.

Luhmann explored the nature of evolution in many of his books.<sup>521</sup> Nonetheless, his most complete account on the subject was written in the third chapter of his final two-part work, *Theory of Society*.<sup>522</sup> In this chapter, Luhmann explains evolution as a product of three elements: variation, selection, and restabilization.<sup>523</sup>

The first two elements, variation and selection, are roughly understood as in traditional Darwinism. Since Luhmann is concerned with evolution in the social domain, variation is understood as variation in the social context, related to modification in the system's communication elements. At this point, Luhmann even acknowledges the similarity of his theory and evolutionary theories of culture, explicitly citing the work of Peter Richerson and Robert Boyd, who conceive of variation as change in the cultural variants.<sup>524</sup> Besides that, Luhmann does not focus his attention on the lower-level mechanisms that produce variants – such as cultural mutation and guided variation<sup>525</sup> –, but only states two points. First, errors in transmission are not held as important in order to be considered in his theory of cultural evolution, because they are usually so unimportant that they do not find an opportunity to be selected. I would disagree with him, insofar as errors in transmission often generate novel cultural variants that can be further replicated and selected by social structures.<sup>526</sup> Second, he argues that evolutionary variation in the social domain results from the communicative process itself: "evolutionary variation comes about only where linguistically successful meaning proposals are called into question in the communication process or flatly rejected."<sup>527</sup>

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521 On this point, see Luhmann, N. (1982). *The Differentiation of Society*; Luhmann, N. (1995a). *Social Systems*; Luhmann, N. (2004). *Law as a Social System*.

522 See Luhmann, N. (2012). *Theory of Society*; Luhmann, N. (2013). *Theory of Society* (Barrett, Trans. Vol. 2). Stanford: Stanford University Press.

523 See Luhmann, N. (2012). *Theory of Society*. p. 259.

524 See Luhmann, N. (2012). *Theory of Society*. p. 272.

525 See Richerson, P. J. and Boyd, R. (2008). *Not by Genes Alone: how Culture Transformed Human Evolution*. p. 69.

526 According to Mesoudi: "People tend to copy ideas, beliefs, skills, and knowledge from other people in a rough- and-ready way, often grasping the gist of an idea but filling in the details themselves in ways that change the information, akin to mutation." Mesoudi, A. (2011). *Cultural Evolution: How Darwinian Theory can Explain Human Culture and Synthesize the Social Sciences*. p. 62.

527 Luhmann, N. (2012). *Theory of Society*. p. 276.

Variation, in this sense, is intrinsically related to selection, because the process of communication is one in which variation is produced but also rejects some variants.<sup>528</sup> However, the evolution of certain social structures – as in biological evolution – has split the functions of variation and selection; variation is being produced as a result of communication, while selection occurs as the result of societal processes occurring in social structures.<sup>529</sup>

As a result, every social system *selects* produced meanings (memes/cultural variants) according to its own criteria (symbolic generalized communication media). Communication processes produce these variants, which are further selected by structures associated to each social system.<sup>530</sup>

Restabilization - the last element is Luhmann's evolutionary scheme – concerns the fact that the selected elements provide certain stability for the system.<sup>531</sup> As a matter of fact, Luhmann himself recognizes that this third element, *restabilization*, can be conflated within *selection* in the biological domain.<sup>532</sup> In the social domain, however, he argues in favor of a dynamic distinction, in which the function of restabilization can be distinguished from selection. Restabilization is defined by Luhmann as "sequences of building structural changes into a system whose operations are structurally determined; and it takes into account that this also takes place through variations and selections, but always through operations of the system itself."<sup>533</sup> The very idea underneath restabilization is that some variations occurring within the social system can lead to instability, in moments where the existing social structures are unable to cope satisfactorily with the demands from the variation surplus produced within communication processes. Further variation and selection can provide structural changes either within the system, or producing new differentiated systems which can cope with the new demands.<sup>534</sup> These novel structures can restabilize societal functions, which can proceed with its internal operations again. This is the heart of the aforementioned Spencerian selection.

Luhmann explicitly mentions the French Revolution as a major example of a restabilization process. The consequences of the 1789 unrest in Paris were unforeseeable as a unified event. Maybe – following his line of

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528 See Luhmann, N. (2012). *Theory of Society*. pp. 277-278.

529 See Luhmann, N. (2012). *Theory of Society*. p. 286.

530 Luhmann, N. (2012). *Theory of Society*. pp. 287-290.

531 Luhmann, N. (2012). *Theory of Society*. p. 292.

532 Luhmann, N. (2012). *Theory of Society*. p. 292.

533 Luhmann, N. (2012). *Theory of Society*. p. 294.

534 Luhmann, N. (2012). *Theory of Society*. pp. 294-295.

thought – they could have been described as a sequence of 'failed follow-up revolutions' which, however, led to the transformation of the monarchic system in a solid representative democracy. Nonetheless, the description of the sequence of failed revolutions as a sociological event (the French Revolution) is truly explanatory. The resulting social changes, including legal codification, secularization, and the transition to an industrial economy, were so deep that the consequent functional differentiation process restabilized the revolutionary innovations as intrinsic elements of the new society.<sup>535</sup>

Luhmann's description of the evolutionary process might sound odd to a Darwinist. At first sight, his three elements – variation, selection and restabilization – do not fit *well* in the neodarwinian paradigm, which is characterized by three sufficient conditions: variation, inheritance, and differential fitness. Selection is the result of this algorithmic process.<sup>536</sup> Of the three Darwinian elements, Luhmann's description lacks two: differential fitness and inheritance. Instead, he replaces them with selection and restabilization. Luhmann himself acknowledged this, but he thought that restabilization could be fused with selection only in static systems, such as economic theories of equilibrium.

Nonetheless, I do not think this is the case. Restabilization should be better understood within Luhmannian theory in the same sense as adaptation at the social level – as an evolutionary product that is selected precisely *because* it performs a function. When certain innovations take place that disrupt social organization, social structures have to reorganize lower-level entities. Otherwise, functional integration at the systemic level might be disrupted. In this sense, restabilization is not a condition for evolution to happen, but the very product of evolutionary change at the structural systemic level.

As a result, restabilization is not only equivalent to selection in static systems, but also in dynamic ones. But it is a selectionist account in a sense

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535 Luhmann, N. (2012). *Theory of Society*. p. 293.

536 See Mesoudi, A. (2011). *Cultural Evolution: How Darwinian Theory can Explain Human Culture and Synthesize the Social Sciences*. p. x; Godfrey-Smith, P. R. (2009). *Darwinian Populations and Natural Selection*. p. 39; Richerson, P. J. and Boyd, R. (2008). *Not by Genes Alone: how Culture Transformed Human Evolution*. pp. 204-209; Richerson, P. J. and Boyd, R. (1984). Natural Selection and Culture. *BioScience*, 34(7), 430-434; Okasha, S. (2006). Evolution and the Levels of Selection. p. 216; Lewontin, R. C. (1970). The Units of Selection. *Annual Review of Ecology and Systematics*, 1, 1-18; Dennett, D. C. (1996a). Darwin's Dangerous Idea: Evolution and the Meanings of Life. pp. 48-60.

slightly different from Luhmann's usage. According to Luhmann, the agent of selection is structure. Communications provide variation, and structures select among the surplus of produced meaning (cultural variants/memes). Restabilization is a different kind of selection, insofar as it refers to selection at the level of structures. When restabilization occurs, novel social structures – and not *meaning* units – are selected. The example mentioned by Luhmann is perfect to illustrate this point. Revolutionary France faced the risk of disintegration during the disturbances occurred in Paris. In that particular moment, many possible cultural variants were being transmitted within the early public sphere of Paris. Political ideals ranging from Rousseau to Locke, the news about the political abuses coming from inside the royal palace, the 1776 American Revolution and its newly-born constitution (1787) – all these *memes* were being transmitted in both formal and informal means, creating a surplus of meaning possibilities that could be structurally selected later on.<sup>537</sup>

These memes were not only cultural in the sense that they carried information about how individuals should behave; they also embodied social content, carrying information about how polity should be organized. The disturbances of the Revolution led to a situation where a particular subset of these memes was selected as the foundation for new kinds of institutions, including representative democracy, the codification of law and secularization. Over time, this new set of institutions proved to be stable enough within the new social framework and capable of dealing with the new challenges, having been selected as the predominant social structure.

It is important to note three different kinds of selection operating here: *cultural*, *social*, and *structural selection*.

The first kind was already discussed in the second chapter. Natural selection can act on cultural variants, changing the cultural composition of a population as a result of the effects of the cultural trait on its adopters. Unlike natural selection acting on biological traits, which selects individuals possessing traits that leads to higher *biological* fitness, cultural selection selects individuals adopting cultural variants that, for this very reason, become more susceptible to be imitated by others. It is important to notice that Richerson & Boyd distinguish cultural selection from biased transmis-

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537 Darnton, R. (2003). *George Washington's False Teeth*. New York: W. W. Norton & Company. pp. 25-75.

sion.<sup>538</sup> In biased transmission, psychological biases affect individual preferences, inclining individuals to adopt certain cultural variants ('memes') instead of others. Cultural selection is not an effect of psychological biases, but an outcome of the effects some cultural variants cause on their bearers, increasing the odds that they will become cultural models to be imitated by other individuals.<sup>539</sup>

Usually, theorists studying memetics and even gene-culture coevolution limit themselves to cultural selection and attempt to explain social evolution only on the grounds of cultural evolution. Nonetheless, this perspective is rather simplistic, because there are social dimensions which are not easily reducible to *culture*, either conceived of as a result of social interactions, as Richerson and Boyd and memeticists propose, or conceived of as a holistic or phenomenological concept, encompassing the background stock of knowledge in the lifeworld (as Habermas proposes, for instance).

This issue is at the heart of the aforementioned critique of the Luhmannian term "social system," envisaged as a meaning-processing system. There can be complex animal societies entirely organized on genetic foundations, with no strict need of a meaning-system like language to organize them. Of course, this is not to say that meaning is irrelevant to understand the social structure of human societies, but to state the need of something more than the concept of meaning, culture or meme to understand its organization.

The Cambridge historical sociologist W. G. Runciman proposes that, besides culture, the study of social evolution urges us to take into account

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538 Cultural evolution is subjected to different sets of forces, ranging from random forces (cultural mutation and cultural drift) to the natural selection operating on cultural populations, and including what Richerson and Boyd call decision-making forces – guided variation and biased transmission. Guided variation refers to nonrandomic changes in cultural traits which are transmitted to others, such as invention or adaptive modification of preexisting cultural variants. Biased transmission encompasses *content-based bias* (the probability that individuals are cognitively more likely to remember and pass along some cultural variants instead of others), *frequency-based bias* (the probability that individuals will adopt the most frequent/most rare trait. An example is the aforementioned conformity bias), and *model-based bias* (the adoption of cultural variants based on the attributes of individuals who exhibit that trait). Cultural selection, then, refers to the adoption of certain cultural traits due to the evolutionary dynamics imposed by biased transmission. See Richerson, P. J. and Boyd, R. (2008). Not by Genes Alone: how Culture Transformed Human Evolution. p. 69-79.

539 In Richerson, P. J. and Boyd, R. (2008). Not by Genes Alone: how Culture Transformed Human Evolution. p. 69.

*social selection*, i.e., the evolutionary processes of social practices "which define mutually interacting institutional roles."<sup>540</sup> According to him, while cultural evolution concerns *acquired* behavior, where agents imitate or learn from other agents, social evolution concerns *imposed* behavior, "where the agent is performing a social role underwritten by institutional inducements and sanctions."<sup>541</sup>

Social selection and cultural selection are usually entangled, as the model-based bias demonstrates. This psychological bias makes individuals more inclined to imitate and learn the *cultural* traits displayed by individuals performing certain *social roles*. For sure, social roles carry meanings that can be described and evaluated in the cultural domain, but they also display some properties that emerge out of the memetic sphere and that can be only understood as *practices* which embody behavioral-patterns normatively imposed by institutions.<sup>542</sup> The most obvious example often mentioned as cultural transmission is the role of a schoolteacher who spreads memes through a community of youngsters.<sup>543</sup> Even if youngsters learn the memes taught by the teacher through cultural transmission, most evolutionary cultural studies neglect a presupposed fact concerning the social status of the teacher. They highlight the fact that children obey the teacher, but forget that the very existence of the teacher demands an institutional structure in which there is a social role for tutors that perform the practice of instructing youngsters.

Of course, there is nothing essentially cultural about the function of roles. Other animals also display social structures with a fairly structured system of roles, such as bees, in which there is a genetically-based division of labor between the queen, workers, and drones. Nonetheless, culture enhances the social possibilities of functional specialization because it enables the cultural definition of roles, which are not only biologically selected, but also culturally selected. Some roles are favored by cultural selection because they respond better to psychological biases than other roles.

It is no surprise that the teacher example is so obvious, then: if, as argued by Richerson and Boyd, among others, there is a cognitive disposition to learn from individuals that display some specific traits (model-based bias), then we should expect that some individuals will attract attention from others and spread some memes more efficiently than others.

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540 Runciman, W. G. (2009). *The Theory of Cultural and Social Selection*. p. 3.

541 Runciman, W. G. (2009). *The Theory of Cultural and Social Selection*. p. 8.

542 Runciman, W. G. (2009). *The Theory of Cultural and Social Selection*. p. 3.

543 Cavalli-Sforza, L. L. (1986). *Cultural Evolution*. p. 851.

This might be the case of teachers and other influential persons, and would be a case of cultural selection of roles, in which biased transmission favors the transmission of cultural traits acquired from some individuals instead of others. Notice that certain roles, while culturally defined, also favor the spread of other cultural variants, thus embodying what Runciman calls *meme-practice coevolution*.<sup>544</sup> This point is overlooked by Geoffrey Hodgson and Thorbjørn Knudsen, who distinguish between memes and practices (understood as routines within organizations) in order to explain organizational evolution.<sup>545</sup>

Runciman presents a second possibility for the evolution of practices: *the social selection of roles*. While the cultural selection of roles is a bottom-up process, the social selection of roles assumes the emergence of social reality out of the cultural domain – a process the British sociologist designates as "the transition from culture to society."<sup>546</sup> As there is a selection process in the cultural domain involving variation between memes, cultural inheritance and differential fitness of cultural traits, there is a parallel evolutionary process in the social domain which also embodies the three Darwinian preconditions. Within any society, there is variation in practices (roles), inheritance through the replication of roles within institutions, and differential fitness of roles, insofar as practices affect the differential rate of survival of the institutions in which they are contained.<sup>547</sup>

It is important to highlight the fact that Runciman fuses two different categories of selection within social selection. First, there is the social selection of practices (roles), a process occurring at the meso-level of society. Organizations compete and, depending on the differential fitness provided by their internal "package" of roles in the competition process, they "survive" and continue being part of the social system, while other organizations perish.<sup>548</sup>

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544 Runciman, W. G. (2009). *The Theory of Cultural and Social Selection*. p. 45.

545 Hodgson, G. M. and Knudsen, T. (2010). *Darwin's Conjecture*. p. 140.

546 Runciman, W. G. (2009). *The Theory of Cultural and Social Selection*. p. 145.

547 Runciman, W. G. (2009). *The Theory of Cultural and Social Selection*. p. 145.

548 As Hodgson and Knudsen exemplify: "The competitive selection of cohesive groups such as firms is due to their differential properties in a common environment. In turn, these differential properties of firms partly emanate from the organized structure of the firms as a whole and are not due merely to the aggregate properties of the individuals in the firm, taken severally. Structured and cohesive interactions between individuals within the firm give rise to, and are properly regarded as, properties of the firm. These are a cause of differential profitability and, thus, differential replication of the firm's routines resulting



Nonetheless, Runciman also proposes that selection occurring as a result of inter societal interaction is also a form of social selection. Situations such as "the imposition of the practices of a stronger society on the population of a weaker one" or when "the rulers of a central, metropolitan society are able to exercise effective domination over one or more peripheral societies" are also described by him as social selection.<sup>549</sup> But this is a different issue. Social selection occurs as a result of the differential fitness that practice confers to meso-level organizations. But when a whole societal system – defined as an integrated structure of institutional domains<sup>550</sup> – influences another system of its own kind, or comes to an end while other societal systems persist, this often happens not because of social or cultural selection. Its other meso-level organizations might be well functioning, but the functional relation between institutional domains (social systems) might not be as well structured as in the surviving societal system. In other words, the functional structure of the whole societal system might be selected at the societal level, as a result of its more efficient organization.

This is what I call *structural selection*. As in both cultural and social evolution, societal evolution occurs as a result of variation, heredity and differential fitness at the level of social structures. Different societal systems display distinguished functional structures (variation); reproduce them through the replication of their culture and their social institutions that maintain the operation of the social systems (inheritance); and the structural relationship between social systems is capable of conferring to the whole societal system differential advantages over other societies (differential fitness).

The British historian Niall Ferguson offers a similar structural selection-like explanation – although not in the same terms – to make intelligible what he sees as the great divergence between the Western world and "the rest."<sup>551</sup> Although China and India dominated world economic history until 1500, since then, the economic growth of the West quickly outpaced their development. Ferguson resorts to six main factors underlying this "great divergence": competition (decentralization of political and economic life), science, property rights and the rule of law, medicine, the con-

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from competitive selection." In Hodgson, G. M. and Knudsen, T. (2010). *Darwin's Conjecture*. p. 173.

549 Runciman, W. G. (2009). *The Theory of Cultural and Social Selection*. p. 145.

550 Turner, J. H. (2010a). *Theoretical Principles of Sociology*, Volume 1. p. 216.

551 Ferguson, N. (2011). *Civilization: the West and the Rest*. New York: Penguin Books. p. 9.

sumer society and the work ethics.<sup>552</sup> While one of the invoked factors – work ethics – might be embodied within Western culture, all the others can only be properly understood as institutional domains (science, law, medicine, economics and politics) structurally organized as social systems. Not only the development of these institutions is at the core of Ferguson's explanation<sup>553</sup> but also the very functional integration between them must be considered.

Structural selection is not independent on lower-level operations. As a matter of fact, social structure can be conceived of as an emergent level that results from lower-level interactions taking place on the micro- and meso-levels. Nonetheless, it is not only the product of a bottom-up process of emergence, since societal structure also affects the lower-level dynamics. As a result, we have to add another layer to understand sociocultural evolutionary dynamics: it is a result of *meme-practice-structure coevolution*.

Now we can return to Luhmann's concept of restabilization. Instead of being an evolutionary condition, it is a product of social evolution. Restabilization occurs when a societal structure adapts itself to its environment, reorganizing its internal elements in a way that conforms and enables itself. As such, it can be conceived of as meme-practice-structural coevolution; all three levels must be reorganized as a result of the selection of a new social structure in order to maintain societal integrity.

Understanding restabilization as meme-practice-structural coevolution also solves the second problematic issue I highlighted in Luhmannian evolutionary theory: the absence of a *fitness-like* concept. In memetic theory, memes are selected because they have differential fitness in the cultural domain and, as such, are better replicated.<sup>554</sup> There is nothing like a fitness-like concept in Luhmannian communication. Or is there? In Luhmann's perspective, each social system operates through *symbolically generalized communication media*, developed within each system "to increase the likeli-

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552 Ferguson, N. (2011). *Civilization: the West and the Rest*. p. 12.

553 The decentralization of political and economic life empowered both, fostering competition within both domains and structuring both the political and economic competitive processes that bolstered their internal consistence as different social systems. The scientific revolution and the subsequent industrial revolution could not have happened without the cultivation of institutions such as universities and the protection of private property (including intellectual property). See Ferguson, N. (2011). *Civilization: the West and the Rest*. p. 288.

554 See Blackmore, S. (2000). *The Meme Machine*. p. 84.

hood of the successful continuation of communication."<sup>555</sup> Each system develops its own specialized communication media, reinforcing its own capacity to generate new communicative variations and to refine its own internal capacity to select outcomes. What counts as acceptable communication varies within each system. A meme/practice can be held acceptable within the economic system because it furthers the circulation of *money*<sup>556</sup>, whereas being rejected by the legal system because it does not conform with the legal standards (as an example, think of illegal profitable activities, such as drug dealing). On the opposite side, an acceptable legal activity can be rejected within the economic domain for not being profitable at all.

These theoretical examples show that, although Luhmann himself does not describe his own theory in these terms, there is a concept of differential fitness inbuilt within his evolutionary perspective, both in the low-level of memes/practices and in the macro-structural level. Selection, in Luhmann's theory, occurs at the lower level, within each social system. Memes and practices are selected because they conform with the internal criteria adopted by each specific social system. However, selection also occurs in the macrostructural domain, as the restabilization – or meme-practice-structure coevolutionary selection – of the entire societal system. Understood in this way, his social theory can be accepted as a Darwinian theoretical framework from the beginning.

The last question concerns autopoiesis, a central concept in his later writings. In a nutshell, the Chilean biologists Humberto Maturana and Francisco Varela devised the concept in order to "explain how biological systems such as cells are a product of their own production."<sup>557</sup> A being (or a system) is autopoietic if it produces the very conditions necessary for it to continue being itself – a system that reproduces and maintains internal organization as a result of its own operations.<sup>558</sup> An autopoietic system not only produces itself (self-production), but it is also self-organized, self-maintained and self-referential.<sup>559</sup>

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555 See Moeller, H.-G. (2006). *Luhmann Explained: from Souls to Systems*. Chicago: Open Court. p. 26.

556 Money is the symbolically generalized communication media of the economic system. See Luhmann, N. (2012). *Theory of Society*. pp. 207-208.

557 See Moeller, H.-G. (2006). *Luhmann Explained: from Souls to Systems*. p. 12.

558 In Maturana, H. R. and Varela, F. J. (1980). *Autopoiesis and Cognition*. Dordrecht: D. Reidel Publishing Company. p. 82.

559 See Teubner, G. (1993). *Law as an Autopoietic System*. p. 18. In Varela's own words: "An autopoietic system is organized (defined as a unity) as a network of

According to Maturana and Varela, evolution *is not considered essential* for the comprehension of the living organization dynamics, but only to understand its historical transformation. Evolution is interpreted as the "result of that aspect of their circular organization which secures the maintenance of their basic circularity, allowing in each reproductive step for changes in the way this circularity is maintained."<sup>560</sup> For evolution to occur, the living system must suffer an internal change without losing its own identity, maintaining its "fundamental circular organization."<sup>561</sup> The basic circularity is maintained in the course of evolution; what changes is *how* the basic circular process is maintained.<sup>562</sup> New forms of organization also imply different predictions about the environmental niche where the organism lives. When the produced offspring's novel organization is not capable of interacting with its niche in a way that it maintains its own integrity, the new system disintegrates. Otherwise, it maintains its internal circular organization and persists.

Evolution, to Maturana and Varela, is based on the concept of *natural drift*, which is the maintenance of the living organism's autonomy and coherence.<sup>563</sup> Evolution is simply the structural drift that comes out as the result of the continuous structural coupling (adaptation) between different organisms which keep linked through a population network.<sup>564</sup> In this sense, Maturana and Varela reject the idea of differential fitness. According to them, either a living being is adapted or not, and as a result no one can talk about degrees of fitness. In their own words, "this description of adaptation as variable (...) is inadequate."<sup>565</sup> Instead of differential fitness, they

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processes of production (transformation and destruction) of components that produces the components that: 1) through their interactions and transformations continuously regenerate and realize the network of processes (relations) that produce them; and 2) constitute it (the machine) as a concrete unity in the space in which they exist by specifying the topological domain of its realization as such a network." In Varela, F. J. (1979). *Principles of Biological Autonomy*. New York: Elsevier/North-Holland. p. 13.

560 In Maturana, H. R. and Varela, F. J. (1980). *Autopoiesis and Cognition*. p. 11.

561 In Maturana, H. R. and Varela, F. J. (1980). *Autopoiesis and Cognition*. p. 12.

562 See Maturana, H. R. and Varela, F. J. (1980). *Autopoiesis and Cognition*. p. 12.

563 According to them, "(...) evolution is a natural drift, a product of the conservation of autopoiesis and adaptation." In Maturana, H. R. and Varela, F. J. (1987). *The Tree of Knowledge*. Boston: Shambhala. p. 117.

564 In Podgórski, J. S. (2014). Humberto Maturana's View on the Theory of Evolution. From Autopoiesis to Natural Drift Metaphor. *Ecological Questions*, 13(1), 1-7.

565 In Maturana, H. R. and Varela, F. J. (1987). *The Tree of Knowledge*. p. 114.

talk only of differential survival – a serious mistake, since the concept of differential fitness is relative (not absolute), accounting for the structural differences between individuals which provide them with only slight advantages that over time change the population genetic pool.<sup>566</sup>

This stance on the subject makes sense within autopoietic theory because, although acknowledging that evolution occurs in a network of beings interconnected due to reproduction, it focuses on the autopoietic system as such, consequently not relying on population thinking.<sup>567</sup> As a result, it cannot observe the role of differential fitness within an evolutionary framework, because it is an adequate concept to understand evolution within populations. One individual is better adapted than other because we can compare them, and we can do so only if our perspective looks at a population of individuals rather than concentrating on the ontogeny of a *single* individual, as autopoietic theory does.

Maturana and Varela also reject the very idea of *natural selection* in favor of natural drift. Instead of being selected by the environment, the living organism couples its internal structure with the environment, and both are changed in the process. There is a continuous coevolutionary dance between organism and the environment, and the living being is not only a passive actor in the process, but an active one.<sup>568</sup> There is no fixed environment that selects living beings, but one which is also being selected through the interaction with living organisms. Selection occurs only as a description of the process, but it is not understood as an evolutionary mechanism in its own right.

But would this be a *rejection of natural selection* as such? I do not think this is the case. As a matter of fact, the idea that organisms also build their own environment is not a rejection of Darwinism. An important strand of contemporary Darwinian theory is *niche construction*, a field that studies the processes through which organisms build their own environment,

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566 See Lewontin, R. C. (1970). The Units of Selection. p. 1.

567 According to Jacek Podgórski: "Natural drift refers to the history of living systems on Earth, that is, the history of the arising, conservation, and diversification of lineages through reproduction, and not of populations (Maturana & Varela 1987; Lewontin 1991)." In Podgórski, J. S. (2014). Humberto Maturana's View on the Theory of Evolution. From Autopoiesis to Natural Drift Metaphor. p. 85.

568 See Podgórski, J. S. (2014). Humberto Maturana's View on the Theory of Evolution. From Autopoiesis to Natural Drift Metaphor. p. 85.

which also acts as a *selector*.<sup>569</sup> Richard Dawkin's *The Extended Phenotype* also denotes how individuals improve their rate of survival through the engineering of their own environment.<sup>570</sup> What Maturana and Varela reject is (i) the idea that the environment is fixed and (ii) that the organism is passive in the evolutionary process. But this criticism can be easily accommodated within a Darwinian framework.

Also, natural drift is not an alternative to natural selection, but a view of the evolutionary process from the stand point of an autopoietic system. Most of the novelties claimed by Maturana and Varela are backed on their concern about the maintenance of autopoiesis through different structures that arise over time, not on the variation produced within a specific population. From this viewpoint, evolution can only be seen as drift because their observing point of view cannot take into account what is going on *outside* the autopoietic system and, as such, they cannot provide an explanation based on the environmental pressures that select specific traits already produced by the variation in the genetic pool. This is not to state that the environment determines the entire course of evolution, because what is selected depends intrinsically on the variation available within the population. Rather than offering a critical approach to Darwinism, Maturana and Varela reinforce it when they affirm this point.

Lacking the population point of view, Maturana and Varela can see only structural drift and that some structures are kept structurally coupled with their environment, but cannot provide reasons to explain *why* this happens at all. This explanation is natural selection, and it requires a population account in order to be correctly understood, because all its elements – variation, differential fitness and inheritance – demands us to focus on the population, not on a single individual. As a result, the challenge posed by autopoiesis to standard Darwinism is weaker than some assume it to be.<sup>571</sup>

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569 See, e.g., Odling-Smee, F. J., Laland, K. N. and Feldman, M. W. (2003). *Niche Construction: The Neglected Process in Evolution* Princeton: Princeton University Press, p. 176.

570 See Dawkins, R. (1982). *The Extended Phenotype*. p. 200.

571 In this sense, I disagree with Escobar's approach on the theme, who thinks that the challenge posed by Maturana and Varela to Darwinism is a serious one. According to him: "If we add to this mechanism the denial of those notions mentioned above, the conceptual challenge to Darwinism becomes evident. The theory of autopoiesis attempts to provide an explanation of the phenomenology of living systems in which core Darwinian notions turn out to be mere descriptive notions used by the observer to deal with biological phenomena, not notions with actual empirical referents." In Escobar, J. M. (2012). *Autopoiesis and Darwinism*. *Synthese*, 53-72. Escobar cannot understand Darwinian elements as em-

Maturana and Varela's perspective should be better understood as a theory about the ontogeny of a living system, not about evolution. This does not mean that autopoietic theory is incompatible with Darwinism, but that both theories are concerned with different issues. On one hand, autopoiesis focuses on how evolved organisms maintain their homeostasis within their ontogeny and how evolution maintains autopoiesis in different evolved structures. Evolutionary theory, on the other hand, concentrates on phylogenetic issues, explaining how variation, heredity and differential fitness produce novel beings through natural selection. Autopoiesis concerns synchronical processes, encompassing the life cycle of individual organisms, while Darwinism focuses on diachronic processes occurring in the evolutionary time frame.

This is why it seems so odd to understand Luhmann's simultaneous reference both to Darwin's evolutionary theory and to Maturana and Varela's autopoiesis. Social systems are not only autopoietic; their structure also evolves. Nonetheless, the strangeness of understanding social systems in both ways can be dissipated when a multilevel selection framework is coupled with the application of Peter Godfrey Smith's concept of Darwinian populations applied to the societal level of analysis. Darwinian populations can be understood both as individual units operating as autonomous beings *and* as the result of nested evolutionary processes. The task of understanding sociocultural evolution through the lenses of Godfrey-Smith will be developed in the next section, with the explicit purpose of explaining the evolution and the inner logic of social structures.

### 3.2.3. Human Societies as Darwinian Individuals

So far, this chapter has served two purposes. The first one was to present Peter-Godfrey Smith's approach with respect to the kinds of entities that can evolve in the Darwinian sense, which can be classified as simple reproducers, scaffolded reproducers and collective entities. Evolution produces all these kinds of reproduction entities and, more specifically, creates new kinds of reproducers nested within other reproducers. One individual is usually composed of nested evolutionary parts, as it happens, for instance,

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pirical referents because, by accepting Maturana and Varela's assumptions, he does not accept the population level as an empirical one. There is no reason to agree with him, however, if we can build theoretical models to understand processes happening at the population level.

among human individuals. One man/woman is constituted by groups of cells organized in a certain way, and cells are Darwinian individuals in their own right. But within cells, the chromosomes are scaffolded reproducers, and, as such, are also Darwinian individuals. As a result, a single human being is constituted by various population levels of nested Darwinian individuals, such as chromosomes (scaffolded reproducers), cells (simple reproducers), and the entire 'human being' (a collective reproducer).

In this section, I have developed so far two ideas. First, I have described the problem of emergence in sociology, based mainly on the account provided by Keith Sawyer, who defined this theoretical puzzle as one related to the relationship between the microsociological level of individual interaction among human beings, and the mesosociological level which defines and contextualizes individual interactions while being influenced by the macrosociological level, which includes in particular the social structure.

Then, I explored Luhmann's systemic theory as an important theoretical framework that could be used to build an evolutionary sociological theory taking emergence into account. Despite acknowledging its potential to address such a difficult task, I pointed out some problems in Luhmann's theory that should be resolved before making any effort to provide a naturalistic theory of sociological emergence. More specifically, I proposed four main points that needed revision within systems theory:

- (i) the need to incorporate within its framework the fact that minds impose constraints on the evolution of sociocultural systems;
- (ii) the absence of low-level theorization requires systems theory to take into account microlevel evolutionary processes, such as the theory of cultural transmission provided by Peter J. Richerson and Robert Boyd;
- (iii) the lack of acknowledgement that multilevel selection processes are needed in order to explain social evolution, taking into account human psychology, the cultural level of analysis and the social structure in a two-way causation process. In order to understand this point, however, systems theory must reincorporate the part/whole distinction along with the system/environment binary code. Jonathan H. Turner's *Theoretical Principles of Sociology*, which implicitly takes both distinctions, could be an inspiration for this task;
- (iv) the need to reconcile autopoiesis and standard evolutionary theory, reframing Luhmann's theory as a Darwinian one.



The task of this subsection is to unify these two themes, constructing a theory about *sociocultural* Darwinian populations, based both on Peter Godfrey-Smith's proposal and the Luhmannian theory, reframed under the above-mentioned lines.

The first point to be noticed is that Peter Godfrey-Smith himself attempted to address the issue of cultural evolution in the last chapter of his *Darwinian Populations and Natural Selection*.<sup>572</sup> Although some of the insights developed in this chapter are useful, I do not think the challenge was successfully undertaken by Godfrey-Smith.

According to him, cultural evolution can be modeled as Darwinian populations in several different ways, which could be classified under two main categories.<sup>573</sup> The first of these is an individualist approach, which describes a population of biological individuals adopting cultural phenotypes which are then passed on to their biological descendants.<sup>574</sup> Under Cavalli-Sforza's scheme, the only form of cultural transmission would be vertical, as a consequence of teaching and imitation.<sup>575</sup> Godfrey-Smith acknowledges the limits of this perspective, since it neglects horizontal and oblique transmission, when "people copy behaviors from people other than their parents."<sup>576</sup> A second individualistic possibility is not focused on the biological population of individual bearers of cultural traits, but considers the very cultural variants as Darwinian populations in their own rights – akin to a memetic style approach. Memes reproduce through imi-

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572 See Godfrey-Smith, P. R. (2009). *Darwinian Populations and Natural Selection*. pp. 147-164. For an insightful discussion of Godfrey-Smith's proposal on this point, see Abrantes, P. (2013). Human Evolution and Transitions in Individuality. *Contrastes Revista Internacional de Filosofía*, 18, 203-220.

573 See Godfrey-Smith, P. R. (2009). *Darwinian Populations and Natural Selection*. p. 150.

574 See Godfrey-Smith, P. R. (2009). *Darwinian Populations and Natural Selection*. p. 150.

575 According to Godfrey-Smith: "In the case of culture there are several ways in which Darwinian populations might be recognized. I will divide these into two main options. The first is the simplest. The entities said to make up the population are ordinary biological individuals, such as people, and culture is treated as an aspect of their phenotype. People have cultural properties (skills, vocabularies, habits), and they vary in these properties. When people reproduce, their offspring often resemble the parents with respect to these features, as a consequence of teaching and imitation. And some people reproduce more than others. The result is evolutionary change." In See Godfrey-Smith, P. R. (2009). *Darwinian Populations and Natural Selection*. p. 150.

576 In Godfrey-Smith, P. R. (2009). *Darwinian Populations and Natural Selection*. p. 150.

tation and other forms of social transmission. According to Godfrey-Smith, "the second approach is to see instances of cultural variants as making up their own Darwinian populations, connected by reproduction. Your father's, or your best friend's, Catholicism might be the parent of your Catholicism."<sup>577</sup>

Another possibility is that cultural evolution occurs at group-level. Here, too, Godfrey-Smith proposes two descriptions – a biological perspective, where groups display cultural phenotypes which are transmitted to off-spring groups, or an autonomous cultural approach, where the Darwinian individual is a group-level package of cultural variants (such as memplexes).<sup>578</sup>

In an article reviewing Peter-Godfrey Smith's proposal concerning cultural evolution, Paulo Abrantes examines the first option, concerning the hypothesis that cultural groups can be conceived of as Darwinian populations. First of all, Abrantes considers that the evolution of cultural groups as Darwinian populations would require that the lower-level units of the group – cultural variants adopted by individuals – would be de-Darwinized, decreasing the amount of variation (V) within the group.<sup>579</sup>

Richerson and Boyd propose three psychological mechanisms for decreasing variation within a group: conformist bias, moralistic punishment and sensitivity to symbolic markers. In chapter 2, I described the role of these three mechanisms in maintaining group cohesion and diminishing cultural variation within the borders of the cultural group. Conformist bias plays a role in suppressing variation because individuals tend to imitate the most common cultural package within the group, therefore reducing the population of alternative memes. Moralistic punishment, coupled with symbolic marking, would lead the group to apply sanctions against those who adopt alternative cultural variants, therefore reducing cultural variation within the frontiers of the band, even if individuals migrate between groups.<sup>580</sup>

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577 In Godfrey-Smith, P. R. (2009). *Darwinian Populations and Natural Selection*. p. 150.

578 See Godfrey-Smith, P. R. (2009). *Darwinian Populations and Natural Selection*. p. 151. I would say that this second approach, in which the Darwinian individual is conceived of as a memplex, is similar to Luhmann's systemic perspective.

579 See Abrantes, P. (2013). *Human Evolution and Transitions in Individuality*. p. 209.

580 For a review of the evidence in favor of these social psychological features, see chapter 2.

According to Abrantes, these mechanisms can reduce variation within the group, but in order to conceive of cultural groups as a paradigmatic Darwinian population we need to show how they fare with relation to the other criteria proposed by Godfrey-Smith – specially reproduction and inheritance, and explore "the role played by selection at the group level in shaping a (possible) new evolutionary dynamics."<sup>581</sup>

Multi-level selection processes can be defined in two major ways – what has been called by Okasha<sup>582</sup> MLS1 and MLS2. In MLS1, while individuals are the selected units and the structure of the group affects group-member's fitness, the group fitness is just the sum of the group-member's fitness. In MLS2, while in MLS2, groups are the selected individuals and they possess features that affect their fitness. In this sense, it is possible to truly identify group-fitness. According to Abrantes, Richerson and Boyd refer to multilevel selection in the first sense (MLS1) because they do not accept that reproduction, inheritance and adaptations occur at the group level.<sup>583</sup> Instead, individuals display and transmit cultural traits which affect competition between groups – but the traits are characteristics of individuals, not groups.

This seems to be a particularly precise reading of Richerson and Boyd's theory. As a matter of fact, they reject the "superorganic concept" due to the fact that they do not understand culture – or cultural adaptations, or institutions – as features of the group, but as features socially transmitted from one individual to another, having no existence in their own right.<sup>584</sup> Although they do not reject group selection, Richerson and Boyd consider that the selected features in group selections are cultural variations present at the individual level, not a bundle of group-level features. If one group displaces another because it has more efficient weapons, this is the result of individual action which produced better military equipment, not because of a group-level adaptation.

Paulo Abrantes points out that, in principle, Godfrey-Smith's proposal brings another reason to reject a MLS2 kind of process leading to group-level evolution: the fact that the concept of reproduction can hardly be applied at the level of groups. In order to be a Darwinian population in its

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581 See Abrantes, P. (2013). *Human Evolution and Transitions in Individuality*. p. 210.

582 See Okasha, S. (2006). *Evolution and the Levels of Selection*. p. 56.

583 See Abrantes, P. (2013). *Human Evolution and Transitions in Individuality*. p. 212.

584 In Richerson, P. J. and Boyd, R. (2002). *Culture is Part of Human Biology: Why the Superorganic Concept Serves the Human Sciences Badly*. p. 63.

own right, groups must "vary, reproduce, and inherit features from other groups"<sup>585</sup> and display a concept of fitness applicable at the group-level.<sup>586</sup> Do cultural groups exhibit these features? Abrantes demonstrates that Godfrey-Smith himself adopts a flexible concept of reproduction that could be embraced in order to cover the case of cultural groups. Indeed, Godfrey-Smith admits that, even in biology, it is hard to sustain a firm distinction between differential reproduction and differential persistence. As a result, he suggests a "permissive attitude"<sup>587</sup> towards the concept of reproduction. Paulo Abrantes builds on this perspective to propose modalities of reproduction at the cultural group-level:

"Godfrey-Smith acknowledges, however, that the borders between differential reproduction and differential persistence are fuzzy. Given the «permissive attitude» (2009, p. 91) he embraces in other hard cases, we are authorized to come up with modalities of reproduction appropriate to cultural groups, that might underwrite a conceivable TI in the human lineage, fueled by cultural inheritance (cf. *ibid.* pp. 84-6; Dennett 2011).

In the case of cultural groups, the literature mentions, effectively, besides growth and persistence, other modalities of group reproduction that might circumvent Godfrey-Smith's appraisal of the Darwinian status of a BPg population, such as group fission and colonization."<sup>588</sup>

Abrantes also puts forward a way of explaining how a MLS2 cultural group<sup>589</sup> could emerge. Based on Okasha, he claims that MLS1 can be a

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585 In Godfrey-Smith, P. R. (2009). *Darwinian Populations and Natural Selection*. pp. 118-119.

586 See Abrantes, P. (2013). *Human Evolution and Transitions in Individuality*. p. 213.

587 In Godfrey-Smith, P. R. (2009). *Darwinian Populations and Natural Selection*. p. 91.

588 See Abrantes, P. (2013). *Human Evolution and Transitions in Individuality*. p. 213. According to Abrantes, the term 'BPg' refers to group-level cultural phenotype.

589 MLS1 and MLS2 refer to the causal processes involved in the production of certain kinds of individuals. It would not be precise to describe a group as MLS1 and MLS2. However, to avoid repetition, I will refer to MLS1 groups as those whose emergence can be explained through MLS1 mechanisms, that is, as a result of the sum of the group-member's fitness. In MLS2 groups, we can talk of group-fitness resulting from groups properties. As a result, 'MLS1/2 groups', from now on, should be understood as groups whose evolution can be explained through MLS1 or MLS2 processes.

first stage on the emergence of a MLS2 Darwinian individual. This proposal entails a diachronic approach towards the evolution of cultural groups as Darwinian individuals.<sup>590</sup> In the first stages, MLS1 mechanisms would drive the transition of cooperative groups, and in the last stage MLS2 processes would stabilize them as Darwinian individuals.

The Brazilian philosopher even sketches how this process might have worked in the course of human evolution.<sup>591</sup> First, kin selection and reciprocal altruism stabilized cooperation between individuals in small family groups and non-kin groups. These mechanisms are MLS1 mechanisms because they sustain cooperation among the members of the group, and do not produce any adaptation at the group level. As a matter of fact, they only work because of their influence on the selection of a particular psychology that impacts individual behavior, guiding persons to cope with their family members (kin selection) and with reciprocating non-kin individuals (reciprocal altruism). As extensively reviewed in the second chapter, human ancestors and other primates such as chimpanzees, gorillas and bonobos are capable of living in groups built upon these principles.

However, kin selection and reciprocal altruism are not able to structure cooperation in large cooperative groups. The emergence of larger bands demanded other psychological mechanisms, as proposed by the dual inheritance theory. In larger societies composed of genetically unrelated members, direct reciprocity could not sustain cooperation. Indirect reciprocity, on the other hand, based on the punishment of free-riders by the group – and not solely by the harmed individual, as it happens in direct reciprocity – could be a mechanism to enhance cooperation in larger groups. Tribal social instincts and the evolution of culture provide the tools for sustaining cooperation at this level, as a result of conformity bias, moralistic punishment, and symbolic marking.

It is important to notice that all these mechanisms are based on human individual psychology. Even so, they set the stage for MLS2 processes to emerge. Conformity and the moralistic punishment of outsiders and those

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590 According to Paulo Abrantes: "MLS2 is usually considered a necessary mechanism in the final stages of the process, in which a new kind of individual emerges – in our hypothetical case, a *paradigmatic* DP of human groups. But one cannot invoke MLS2 from the beginning since an individual, with their hierarchical organization, has first to be set up through mechanisms acting at the lower levels (Okasha, *ibid.*, p. 229)." In Abrantes, P. (2013). *Human Evolution and Transitions in Individuality*. p. 214.

591 The following is a development of Abrantes' argument. See Abrantes, P. (2013). *Human Evolution and Transitions in Individuality*. p. 214.

who do not accept the same symbols of a group contain variation within groups and further variation between groups, therefore creating the conditions for group selection to work and produce cultural groups as Darwinian individuals in their own right. As Abrantes says: "in this stage, mechanisms for suppressing internal variation and for conflict mediation have to be in place and a new modality of group-level reproduction emerges."<sup>592</sup>

Each of these transitions scores differently in terms of the parameters proposed by Peter Godfrey-Smith.<sup>593</sup> Family and small non-kin groups score high in inheritance fidelity (H). Most inheritance occurs at the biological level and even when cultural transmission occurs, it is maintained by the strong ties related to kinship and limited immigration.<sup>594</sup> Variation (V) within groups is high, and – again – mostly related to genetic transmission. Nonetheless, variation (V) between groups is low, because the genetic profile of different populations is similar and there is little cultural variation between groups due to the lack of cultural accumulation over time. This is one of the reasons why selection does not occur at the group level; variation is high within groups, but not between groups, therefore not providing the foundations for the emergence of group-level characteristics.

The relationship between fitness and intrinsic properties (S) is also more related to the individual level than to the group. As a result, groups survive or perish as a result of the intrinsic features of its members, and not of group-level characteristics. As a matter of fact, there is little to be said concerning the intrinsic properties of a group apart from its size. *Ceteris paribus*, larger groups displace smaller groups, but size, in this context, is more a function of the individuals' reproductive success than a group-level feature *per se*.

Godfrey-Smith also emphasizes three reproduction-related parameters, bottleneck (B), reproductive specialization (G) and overall integration of the collective entity (I). *Kin-related bands and small non-kin groups* score low

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592 In Abrantes, P. (2013). Human Evolution and Transitions in Individuality. p. 214.

593 I will not comment on parameter C because I do not think it is a particularly important parameter in the context of comparing human kinds of groups.

594 Even among chimpanzees, aggression towards foreigners is an established fact. See Mitani, J. C., Watts, D. P. and Amstler, S. J. (2010). Lethal Intergroup Aggression Leads to Territorial Expansion in Wild Chimpanzees. *Current biology: CB*, 20(12), R507-508. Concerning cultural variation among chimpanzees, see Whiten, A., Goodall, J., McGrew, W. C., Nishida, T., Reynolds, V., Sugiyama, Y., Tutin, C. E. G., Wrangham, R. W. and Boesch, C. (2001). Charting Cultural Variation in Chimpanzees. *Behaviour*, 138(11/12), 1481-1516.

on each of these parameters. There is no bottleneck – defined as "a narrowing that marks the divide between generations."<sup>595</sup> Although these groups can split, producing novel groups, it is often hard to say which group is the parent or the offspring. These groups resemble buffalo herds, the example mentioned by Godfrey-Smith; as a buffalo herd, family groups and small non-kin groups reproduce themselves as a result of reproduction at the lower level of its individual members. Also, there is no reproductive specialization at all (G), nor overall integration at the level of the collective entity (I), insofar as the group can "reproduce" as a result of mere splitting. Unless all the group-members performing a necessary sociological function within the group decide to leave, the group suffers nothing in terms of its persistence as a result of migration. In more consolidated Darwinian individuals, integration can be so tight that the loss of autonomy of its parts might lead to such high dependence that the death of a part can lead to the disintegration of the whole individual.

This description of family groups and small non-kin groups, based on Godfrey-Smith's parameters, leads to one conclusion. In these groups, the evolutionary pressure is directed to the group-members, not to the band as an evolutionary individual in its own right. As a result, the band exists only as a bundle of individuals. In this sense, bands are a very marginal case of Darwinian population.

*Large cooperative groups* are composed of members possessing a more sophisticated social psychology – capable not only of cooperating with relatives and with those who reciprocate, but also based on shared symbolic markers and in the moralistic punishment of free-riders and outsiders. This social psychology also enables cultural evolution based on imitation and on conformity bias.

If familiar groups and small non-kin bands are at best highly marginal cases of Darwinian groups, large cooperative groups are an intermediate case. They score well in the V parameter. Variation is generated as a result of cultural selection and other evolutionary forces operating at the lower level of cultural transmission (cultural mutation, drift, decision-making forces and natural selection)<sup>596</sup>, and is maintained via moralistic punishment, conformist bias, symbolic marking and cultural accumulation. These cultural groups also score high in the H parameter; the cultural pool

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595 In Godfrey-Smith, P. R. (2009). *Darwinian Populations and Natural Selection*. p. 91.

596 See Richerson, P. J. and Boyd, R. (2008). *Not by Genes Alone: how Culture Transformed Human Evolution*. p. 69.

transmitted from one generation to another is maintained relatively stable also as a result of these mechanisms.

The S parameter (the relationship between fitness and intrinsic properties) is low, due to the fact that group fitness is related to the properties of their individual members, and not to intrinsic group-level features. Although individuals in these groups adopt cultural traits and practices that enhance the identity of the group as a collective entity more integrated than the loose small non-kin groups and families, there is still no group-level feature that could account for an adaptation. As such, the group survives or perishes as a result of cultural traits, abilities, and inventions developed and transmitted at the group-member level.

Concerning reproduction, the first large cooperative groups also score low in the B parameter (bottleneck). While group reproduction happens because of its persistence over time, it is common that some communities split and form new groups out of older ones.<sup>597</sup> But these groups simply continue the development of the older ones from which they have split, not reconstructing their ontogenetical path of development and establishing a clear division between parent and offspring groups.<sup>598</sup>

Concerning the parameter G (germ lines), the ancient hunter-gatherer culturally-organized groups usually score low. Although groups can now be conceived of as a network of cultural traits, culture is transmitted only in informal networks, with no specialized institution. Only later, with the development of chiefdoms, some individuals became specialized in maintaining and transmitting the tribal memes to youngsters, thus keeping the cultural identity of the tribe over time.<sup>599</sup> But within hunter-gatherer tribes, usually no such specialization exists and customs, habits and other cultural variants are transmitted through networks of communications and rituals involving all members of the group.<sup>600</sup>

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597 See Flannery, K. and Marcus, J. (2012). *The Creation of Inequality: How Our Ancestors Set the Stage for Monarchy, Slavery, and Empire* (Kindle ed.). Cambridge: Harvard University Press. p. 80.

598 Some groups establish a distinction between older groups and newer ones, as Flannery and Marcus acknowledge, but not affecting the developmental path of the younger group, which starts as a mere development of the senior one. See Flannery, K. and Marcus, J. (2012). *The Creation of Inequality: How Our Ancestors Set the Stage for Monarchy, Slavery, and Empire*. p. 106.

599 See Flannery, K. and Marcus, J. (2012). *The Creation of Inequality: How Our Ancestors Set the Stage for Monarchy, Slavery, and Empire*. p. 74.

600 See Clastres, P. (1989). Society Against the State. p. 150; Walsh, R. (1989). What is a Shaman? Definition, Origin and Distribution. *The Journal of Transpersonal Psychology*, 21(1), 1-11.



*Large cooperative groups* also score high in parameter I – integration. By relying on symbolic markers as authentic and genuine foundations for co-operation and distinguishing in-groups from outsiders, the members of these groups share what H. Patrick Glenn calls *chthonic traditions*, a belief system that embodies communitarian identity and which is transmitted orally through the network of its own individual members.<sup>601</sup>

As Godfrey-Smith states, integration means (i) mutual dependence of parts, (ii) division of labor, and (iii) the maintenance of a boundary between the collective and what is outside it.<sup>602</sup> A cooperative group unified through symbolic marking and the sharing of a common cultural ground achieves this third integrative purpose, because symbols are a reliable means of distinguishing insiders from outsiders, thus institutionalizing a boundary that encloses the group not only as a collective entity possessing a particular package of memes spread through the individual minds of its members, but also as a cultural system in its own right (a memplex).

Being closed units, large cooperative groups pave the way for the evolutionary transition to groups as entities resulting from MLS2 evolutionary processes, possessing group-level traits in their own right. The evolution of large cooperative groups gave rise to a selective pressure on individuals possessing particular tribal social instincts but, more than that, it established the preconditions for the selection of cultural groups as collective Darwinian individuals.

One further point should be noted about integration and the evolution of large cooperative *cultural* groups. The evolution of symbolically marked groups through group selection presupposes another psychological disposition, which Tomasello calls "collective intentionality."<sup>603</sup> Instead of depending only on their own perspective (individual intentionality), the

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601 See Glenn, H. P. (2010). *Legal Traditions of the World*. New York: Oxford University Press, USA. pp. 63-66.

602 See Godfrey-Smith, P. R. (2009). Darwinian Populations and Natural Selection. p. 93.

603 See Tomasello, M. (2014). *A Natural History of Human Thinking*. p. 6. It should be noticed that Tomasello is focused on discussing the evolution of human social psychology related mainly to Pleistocene. He acknowledges that he has "given only cursory attention to humans after agriculture and all of the complexities arising from the intermixing of cultural groups, from literacy and numeracy, and from institutions such as science and government." In Tomasello, M. (2014). *A Natural History of Human Thinking*. p. 152. I hope that this dissertation can be a small contribution concerning the understanding of the evolution of cooperation in the Holocene, particularly after the appearance of more complex societies.

members of a particular group also reason through an "objective" perspective assumed as a standpoint shared among the group. In Michael Tomasello's perspective, collective intentionality is built over the capacity to construct a common cultural ground based on conventions and social norms, which was particularly connected to linguistic conventions needed to cooperative communication. As a result of these psychological capacities, individuals could justify their actions through commonly accepted norms of rationality, developing an objective perspective: "This meant that individuals now could reason 'objectively' from the group's agent-neutral point of view ('from nowhere'). Because the collaboration and communication at this point were conventional, institutional, and normative, we may refer to all of this as collective intentionality."<sup>604</sup>

Collective intentionality can be understood as a selected individual trait, since it is the capacity to reason through the cultural standards accepted by the group. Although being an individual psychological trait, it enhances the cohesion of the group as an entity, enclosing it from the bottom-up perspective of its individual members.

But how did collective intentionality evolve? Tomasello proposes that this psychological feature evolved from earlier psychological dispositions, such as the capacity of anticipating what others will do and manipulate them according to that knowledge, as devised in the Machiavellian intelligence hypothesis (individual intentionality) and the ability of coordinating attention with other individuals in order to pursue results desired by both (joint intentionality), producing what he calls a "we" intentionality (collective intentionality) within particular contexts.<sup>605</sup> According to his hypothesis, the second step occurred long ago,<sup>606</sup> evolving out from the primates' ability of gathering attention to produce group-desired goals, insofar as some (but not all) psychological traits proposed by his theory can be observed in other primates.<sup>607</sup> The third step (collective intentionality) most likely evolved within human populations already living in cultural groups,

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604 See Tomasello, M. (2014). A Natural History of Human Thinking. p. 5.

605 See Tomasello, M. (2014). A Natural History of Human Thinking. p. 32.

606 According to Tomasello, joint intentionality most likely "evolved in Africa before the split between Neanderthals and modern humans and so characterized both species." In Tomasello, M. (2014). A Natural History of Human Thinking. p. 141. In this sense, according to the author, *Homo heidelbergensis* was probably able to display joint intentionality. Tomasello, M. (2014). A Natural History of Human Thinking. p. 36.

607 See Buttelmann, D., Schütte, S., Carpenter, M., Call, J. and Tomasello, M. (2012). Great Apes Infer Others's Goals Based on Context. *Animal cognition*,

probably after 100,000 years ago.<sup>608</sup> According to Tomasello, in a coevolutionary process, human psychology developed the ability to engage in action based in pre-existing agreements present within the group's cultural background.<sup>609</sup>

Symbolic markers are only one aspect of collective intentionality, and it is related to group identification and the differentiation between "us" and "them." As Tomasello says, "individuals thus began to understand themselves as members of a particular social group with a particular group identity – a culture – based on a we-intentionality encompassing the entire group."<sup>610</sup> In a certain sense, collective intentionality allowed the evolution of a second concept of culture. From the individualistic perspective based on the transmission of features from one person to another, culture can now be *also* conceived of as the background stock of information.<sup>611</sup>

Tomasello's account is largely compatible with Richerson and Boyd's account of the evolution of large cooperative groups. As a matter of fact, I would say that the members of Richerson and Boyd's cultural groups are fully capable of collective intentionality. They organize their social lives based on the cultural 'common ground', what is only possible when collective intentionality takes place.

Nonetheless, collective intentionality is only one requisite for the emergence of human societies as fully Darwinian collective individuals. Richerson & Boyd reject the very idea of superorganicism (the idea that society is a superorganism supported by culture) founded solely on collective intentionality – individuals operating on the assumption that their individual beliefs are part of a commonly shared pool of beliefs.<sup>612</sup> In order to achieve such an evolutionary possibility, a certain social structure must arise above culture: for them, social evolution creates institutional work-arounds that respect our social instincts, evolved for life in the small-sized communities of the Pleistocene, while building an entirely new set of institutions.<sup>613</sup>

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15(6), 1037-1053; Tomasello, M. (2014). *A Natural History of Human Thinking*. p. 43.

608 See Tomasello, M. (2014). *A Natural History of Human Thinking*. p. 141.

609 See Tomasello, M. (2014). *A Natural History of Human Thinking*. p. 38.

610 In Tomasello, M. (2014). *A Natural History of Human Thinking*. p. 82.

611 In Habermas, J. (1987). *The Theory of Communicative Action: Lifeworld and System - A Critique of Functionalist Reason*. p. 138.

612 See, e.g., Richerson, P. J. and Boyd, R. (2002). Culture is Part of Human Biology: Why the Superorganic Concept Serves the Human Sciences Badly. pp. 62-63.

613 See Richerson, P. and Boyd, R. (1999). Complex Society: the Evolutionary Origins of a Crude Superorganism. *Human Nature*, 10(3), 253–289.

These work-arounds, as mentioned on chapter 2, are based on coercive dominance, segmentary hierarchy and symbolic legitimacy. While Richerson & Boyd reject superorganicism based solely on culture, they embrace the concept to describe societies possessing a particular set of institutions which instantiate the work-arounds needed to lay the foundations of a complex society on human social psychology. Although they still refer to these institutions as "cultural innovations," I would say that they are not only cultural, but also a structural feature of more complex societies.

To be sure, a sociologist such as Luhmann also rejects the idea of viewing society as an organism. But the reasons why he and Richerson & Boyd reject the organismic metaphor are very different. Luhmann rejects it for methodological reasons, since he sees living systems just as instantiations of a more comprehensive cybernetic approach. There are living systems, as there are psychic systems and social systems, all operating within their own domains. Richerson & Boyd reject the organismic metaphor based solely on cultural transmission because they see culture just as an individual trait, and not a collective adaptation.<sup>614</sup> In this sense, as Richerson and Boyd see it, cultural groups can be Darwinian marginal individuals evolved only through the MLS1 evolutionary process, never through the MLS2. They would need to rely on more than cultural traits in order to sustain the kind of institutional stability needed to structure the evolutionary process acting on the social group as a whole.

Collective intentionality paved the road for the transition between MLS1 evolved communities and MLS2 evolved societies from the standpoint of our social psychology. It was a necessary condition (although not a sufficient one) for the evolution of more complex societies, since it enabled us to bridge the link between culture and social structure. Richerson &

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614 In their own words: "Culture is a major aspect of what the human brain does, just as smelling and breathing are what noses do. Culture-making brains are the product of more than two million years of more or less gradual increases in brain size and cultural complexity. During this evolution, culture must have increased genetic fitness, or the psychological capacities for it would not have evolved. Indeed, anthropologists long interpreted much of culture in adaptive terms (e.g., Steward, 1955). Rather than a neat, narrow boundary between innate and cultural processes that can be characterized by a short list of simple biological constraints on human behavior, we imagine a wide, historically contingent, densely intertwined set of phenomena with causal arrows operating in both directions. If we think of human culture as part of human biology in this way, we simply do not need try to unpack what 'superorganic' could possibly mean." In Richerson, P. J. and Boyd, R. (2002). *Culture is Part of Human Biology: Why the Superorganic Concept Serves the Human Sciences Badly*. p. 63.

Boyd's concept of culture entails that information transmitted from individual to individual concerns technology, beliefs or weapons relative to and usable by persons, but not information attributes concerning the *whole group structure*. By taking collective intentionality into account, Tomasello allows us to bridge the link between persons and the community.

To be fair to Richerson & Boyd's theoretical work, their discussion about institutional work-arounds almost faces this issue. According to them, these work-arounds are *cultural innovations*. For sure, the institutionalization of coercion and hierarchy demand the diffusion of many cultural beliefs. But they are more than a cultural innovation; they are a *structural* objective feature of society, irreducible to the beliefs of its members.

Norms are an obvious example of cultural innovation that achieves this structural status. Although embodied within the minds of each member of the group, norms also achieve an existence of their own. When individuals evaluate if others are complying with the rule-system, they are addressing the group standard, an *objective standard of rules*, and not simply the rule-as-they-remember-it. This normative system is part of the group's identity and, as such, escalates from the individual mind to becoming a feature of the group. Other members *expect* the rules to be obeyed and sanctions to be applied when transgression occurs.<sup>615</sup> Of course, *part* of the existence of the rules system is due to the fact that individual minds remember it and reinforce it, just as *part* of the human organism's existence is due to each cell doing its own work. The group's normative system emerges as a structure in its own right, acquiring an ontological status *per se*.

The system of rules is only one *feature* that can be attributed to the group as such, and irreducible to the level of individual beliefs. The structure of government, for instance, is another feature irreducible to individual beliefs transmitted from one individual to another. Individuals can only expect that the expected position holders occupy the roles, but the network of positions and the interconnection between them are a social feature irreducible to beliefs.

Although irreducible to beliefs, these features are connected to them by means of collective intentionality. Cultural practices, through the "we intentionality," can turn some features of the community publicly known, including its structure. As Chwe argues, the main function of public events is to turn fundamental communal issues into public knowledge, en-

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615 See Luhmann, N. (2004). *Law as a Social System*. p. 9.

couraging others to conform.<sup>616</sup> Tomasello states, then, that an important function of "we intentionality" is to produce public conventions and, through them, create institutional reality – the ontological realm of collective entities.<sup>617</sup> The philosopher John Searle explored this point through the formula "X counts as Y in context C."<sup>618</sup> We are capable of reasoning within the rules of institutional intentionality, accepting a background agreement on the rules concerning how to act on a given situation. In a chess game (context C), the piece (X) counts as a king (Y). According to Tomasello, the ability to reason institutionally derived from collective intentionality. We create institutions and, by creating them, we also constrain and raise new possibilities of action.

My argument goes further than Tomasello's. Collective intentionality not only raised the possibility of reasoning through institutions, such as playing games or following the rules of a legal code. Unlike Tomasello<sup>619</sup>, I sustain that collective intentionality also raised the possibility that, by cre-

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616 See Chwe, M. S.-Y. (2003). *Rational Ritual: Culture, Coordination and Common Knowledge*. Princeton: Princeton University Press.

617 See Tomasello, M. (2014). *A Natural History of Human Thinking*. p. 89.

618 See Searle, J. R. (1995). *The Construction of Social Reality*. New York: Free Press. p. 28; Searle, J. R. (2010). *Making the Social World: the Structure of Human Civilization*. Oxford: Oxford University Press. p. 96.

619 Tomasello rejects the idea that social reality is irreducible to lower-level phenomena in the long term, as a stable feature of human sociability. Shared intentionality is only short-term irreducible, existing only during the interaction between two or more individual agents. In his own words: "A list of open questions at this point would be quite long. But two particularly big ones are these: First is the nature of the jointness of collectivity or "we-ness" that characterizes all forms of shared intentionality. Many theorists subscribe to something like an irreducibility thesis (e.g., Gallotti, 2012) in which such things as joint attention and shared conventions are irreducibly social phenomena, and attempting to capture them in terms of the individuals involved, and what is going on in their individual heads, is doomed to failure. Our view is that shared intentionality is indeed an irreducibly social phenomena in the moment— joint attention only exists when two or more individuals are interacting, for example— but at the same time we may ask the evolutionary or developmental question of what does the individual bring to the interaction that enables her to engage in joint attention in a way that other apes and younger children cannot. And so for us this means that something like recursive mind-reading or inferring— still not adequately characterized, and in most instances fully implicit— has to be a part of the story of shared intentionality. From the individual's point of view, shared intentionality is simply experienced as a sharing, but its underlying structure, reflecting its evolution, is that each participant in an interaction can potentially take the perspective of others taking her perspective taking their perspective,

ating institutions, institutional reality created a world of its own. A system of rules, or a government, are group-features, irreducible to the beliefs of individual group-members. They are created and maintained by collective intentionality, as background agreements which people assume in order to live their lives. Although originally constructed from bottom-up processes, and maintained through processes of conventionalization, they are kept as group-features, and, as such, they can be selected as group-features *per se*.

Now, I can return to Godfrey-Smith's scheme. If Abrantes is right, Richerson & Boyd's large cooperative groups are not yet full Darwinian collective entities because they do not possess group-level features. They can evolve through group selection as MLS1 entities, which solves the problem of free-riding due to being capable of symbolic marking and moralistic punishment, as well as having some social tribal instincts such as shame and guilt. The member of these groups could not, however, be capable of collective intentionality and of producing conventional institutions.

The paramount example of MLS1 group selection is Nuer's conquest of the Dinka, which has been used as an example of *cultural group selection*.<sup>620</sup> These two peoples lived together in the marshes of southern Sudan, used the same technologies and derived from the same ancestors. The only differences, according to the standard reading, were related to their cultures. The Dinka maintained small herds of cattle, which were frequently slaughtered and eaten, while the Nuer kept larger herds and only used their de-

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and so forth for at least a few levels. But this, as they say, is a point on which reasonable people may disagree." In Tomasello, M. (2014). *A Natural History of Human Thinking*, p. 152. I disagree with Tomasello because his approach is bottom-up; from the standpoint of someone describing social institutions by observing individual psychology, social reality only exists in a particular moment when interaction occurs. From the standpoint of someone observing processes happening both within individual social psychology, low-level interactions, their effects on social institutions and especially the effects of social interactions on the behavior of individual agents, it is unreasonable to assume that higher-level social reality only exists during short-term interactions. The volume of interactions, shared assumptions and institutional constraints to behavior is so high that we can identify the societal domain as an ontological level in its own right – without denying that this ontological layer is connected to processes happening in lower-level layers.

- 620 See, on the subject, Richerson, P. J. and Boyd, R. (2008). *Not by Genes Alone: how Culture Transformed Human Evolution*, pp. 23-25. See also Godfrey-Smith, P. R. (2009). *Darwinian Populations and Natural Selection*, pp. 151-152; Abrantes, P. and Almeida, F. (2011). *Evolução humana: a teoria da dupla herança*. In Abrantes (Ed.), *Filosofia da Biologia* (pp. 261-295). Porto Alegre: Artmed, p. 278-279.



rived products, such as milk. The Dinka lived together in small encampments constrained by geography, while Nuer tribes could grow indefinitely. According to the anthropologist Raymond Kelly,<sup>621</sup> these differences resulted from specific features of the wedding systems of both tribes, which adopted a net transfer system of livestock from the groom's family to the bride's relatives. Among the Nuers, the minimum payment was about 20 heads of cattle, while the Dinka had no minimum acceptable amount (and even allowed credit!). As a result of the subsistence and dowry practices, the Nuers maintained larger herds even in tough times, while a Dinka family, sometimes, could not receive a single cow for an entire generation. Over time, the practices adopted by the Nuer allowed them to recruit larger armies because the larger herds could sustain their sizeable populations.<sup>622</sup> The Nuer's conquest of the Dinka did not occur as a result of any group-level feature, but as a result of Nuer members possessing and transmitting specific memes concerning dowry and subsistence practices instead of others, which affected the survival rate of the group.

Compare the Nuer's conquest of the Dinka with the Roman conquest of Europe. The Roman Empire was not sustained solely on a belief-system, but on a specific structure of government that allowed the control of conquered peoples, a structured legal system and a functional economy.<sup>623</sup> Rome had societal features – features possessed by the group, the whole Roman Empire, not by its individuals – that no other archaic society possessed, allowing for the characterization of the Roman Empire as a Darwinian individual in its own right. But how did this transition – from "large cooperative groups" to entities such as the Roman Empire – happen?

The transition to cultural-groups-as-Darwinian-individuals (subjected to MLS2 selection) was stabilized after individuals evolved collective inten-

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621 See Kelly, R. (1985). *The Nuer Conquest: The Structure and Development of an Expansionist System*. Ann Harbor: University of Michigan Press.

622 See Richerson, P. J. and Boyd, R. (2008). Not by Genes Alone: how Culture Transformed Human Evolution. p. 24-25.

623 See, e.g., Runciman, W. G. (1983). Capitalism without Classes: The Case of Classical Rome; Wieacker, F. (1981). The Importance of Roman Law for Western Civilization and Western Legal Thought. *Boston College International and Comparative Law Review*, 4(2). Note that saying that Rome had a more complex societal structure does not entail that it was adapted to everything. As a matter of fact, its structure could not stand the test of time, especially because slavery could not sustain the Empire economically and the fragmented government structure ultimately fractured the cultural integration (or, as Peter Turchin calls, collective solidarity) of the Empire. See Turchin, P. (2003). *Historical Dynamics: Why States Rise and Fail*. Princeton: Princeton University Press.



tionality and cultural accumulation coupled with social differentiation, and as a result produced group-level adaptations. At the lower level, this ability provided agents with a more cohesive capacity of acting as members of the group, obeying the rules of the band. At the group level, collective intentionality allowed for the evolution of group-features (including group-level adaptations) that could be selected as such. The structuration of government, rule systems (instead of moral codes based on personal violations of reciprocal altruism), and role-based stratification are all features that can be attributed to the group level, and as such are irreducible to individuals. As a result of this process, natural selection could work at the level of the group, *selecting group-level features* - more specifically, particular social structures.

Collective social entities, as full-blown Darwinian individuals, are MLS2 entities. They possess not only cultural properties at the group level (background information on which the group members can rely their daily activities), but also structural properties resulting from their institutional integration.

How would these entities fare in terms of Godfrey-Smith parameters? First of all, as in *Large Cooperative Groups*, low-level entities are de-Darwinized. Although individuals compete, their interaction is structured by culture and social structure on producing cooperative outcomes. As a result of punishment and conformity psychological bias, cultural variation within communities is low, while it is high between different groups. The parameter H (Heredity) is also high, insofar as social control monitors information transmission processes. In more sophisticated societies, the education system provides the leveling of information to all youngsters, ensuring the maintenance of a minimum core of cultural identity background.<sup>624</sup>

So far, there is little difference between full-blown human societies as Darwinian individuals and the large cooperative groups described by Richerson and Boyd. Things begin to change when we take a closer look at parameter S. In large cooperative groups, S is low, because group fitness is related to individual properties, and not group properties more widely. In MLS2 evolved human societies, S is high because they display structures at the group level that are directly responsible either for their selection vis-à-vis other societal groups or for their persistence over time.

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624 See, e.g., Callan, E. (1997). *Creating Citizens: Political Education and Liberal Democracy*. Oxford: Clarendon Press.

Concerning reproductive parameters, the B (Bottleneck) parameter is also low, because complex societies usually do not generate a visible "narrowing that marks the divide between generations."<sup>625</sup> However, complex societies can score high in parameter G (germ line). The education system of most industrialized societies, for instance, is responsible for replicating most of the low-level culture and preparing youngsters to occupy specific roles in specialized institutions later in their lives. By doing so, the educational system acts as a *memetic* germ line, a systemic institution specialized in educating individuals on basic information that allow them to potentially participate in all institutional domains.<sup>626</sup>

Last, but definitely not least, MLS2 selected human societies also score high in parameter I - integration, for two reasons. Large cooperative groups score high in this parameter because they can be unified by culture both due to psychological biases (such as conformity), social tribal instincts and a psychology capable of engaging in reciprocal relations, as well as due to moralistic punishment. As Parsons sustained, social integration is enabled by the respect of individual actors for the moral authority of a binding value system.<sup>627</sup> Actors become able to play roles within the social

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625 In Godfrey-Smith, P. R. (2009). *Darwinian Populations and Natural Selection*. p. 91.

626 Functional differentiation had a major impact on the role of education. In traditional agrarian societies, nuclear families were capable to educate their children and teach them all the skills they needed. The emergence of novel corporate units with specialized norms and practices demanded more knowledge than the kinship-based educational model could provide. As Jonathan Turner argues, social change had to respond to these selection pressures by specializing the educational system in a differentiated domain: "However, as the number and variety of corporate units and their respective cultures differentiated, social reproduction became ever-more complex, requiring that each generation learn more than could be taught within kinship. At times, knowledge was imparted within distinctive corporate units of differentiating domains such as economy, polity, and religion. Yet, selection pressures continued to push on actors to forge new structures for socializing individuals into the cultural storehouses of highly differentiated institutional domains and distinctive types of corporate units within these domains. Under these pressures, education as an institutional domain began to evolve; and over the last 200 years, this domain differentiated internally, while gaining increased autonomy from other institutional domains." In Turner, J. H. (2010a). *Theoretical Principles of Sociology*, Volume 1. pp. 100-101.

627 See, e.g., Habermas' account of Parsons on the subject: "This social integration demands of individual actors respect for a moral authority upon which the validity claim of collectively binding rules can rest. Parsons is already developing here the idea of a morally imperative - and in this sense ultimate-value system,

system because they are educated within the cultural system's values.<sup>628</sup> In more complex societies, where cultural consensus cannot be assumed as a starting point, law can provide such systemic enclosure because it creates institutional mechanisms that reinforce adherence to a common societal structure. As we will see, integration can also be assumed within more developed human societies that can be featured as *full-blown Darwinian individuals*.

Similarly to Habermas, Parsons also conceives of culture as a repository of symbolic information to individuals, and, as such, it is a group-level feature in evolutionary terms. Although it is an emergent property derived from individual interaction through which persons transmit information concerning their beliefs, values, abilities, among others, over time much of this information becomes a repository on which individuals can rely on in order to pursue their own goals. This is not only a result of individual action and memory (which generate ephemeral emergents), but it is also a consequence of socially developed structures that hold the group's informational repository, embodying group culture within reliable sources such as libraries, books, museums, and other anchors.<sup>629</sup> As a result, literature, architecture and other physical structures can further more integrated societies because they create corporeal arrangements (stable emergents) that embody symbolic meanings which help fostering group values at the individual level.

Although large cooperative groups could be integrated by means of cultural transmission at the lower-societal level (individual interaction), the transition to societies as full-blown Darwinian individuals also generates another form of integration – not between cooperating individuals, but between functional institutions. This is the second reason for human societies scoring high in the Integration (I) parameter. This is what Jonathan Turner calls *institutional integration*.<sup>630</sup>

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which is, on the one hand, embodied in social norms and, on the other, anchored in the motives of acting subjects." In Habermas, J. (1987). *The Theory of Communicative Action: Lifeworld and System - A Critique of Functionalist Reason*. p. 207.

628 As Jonathan Turner acknowledges, this is a major theme in Parsons' work. See Turner, J. H. and Maryanski, A. M. (1979). *Functionalism*. San Francisco: Phoenix Publishing Services. p. 74. I will return to this point on chapter 4.

629 See, e.g., Anastasio, T. J., Ehrenberger, K. A., Watson, P. and Zhang, W. *Individual and Collective Memory Consolidation* (Kindle ed.). Cambridge: The MIT Press.

630 See Turner, J. H. (2010a). *Theoretical Principles of Sociology*, Volume 1. pp. 125-146.

The emergence of different institutions entails the generation of different social systems possessing varying cultural codes and performing independent functions. Over time, this differentiation pattern might cause societal disintegration. Societies possessing social structures better adapted for integrating institutions from different domains would have an advantage over other societies, which would disintegrate or persist in a lower differentiated level of complexity – what is, according to Niall Ferguson's reading, exactly what happened to Eastern societies in the beginning of Modern times.<sup>631</sup>

However, within societies able to cope with institutional integration and, as a result, capable of sustaining and fostering systemic differentiation, each institutional domain produces a particular memetic Darwinian selection system, producing and selecting its cultural variants according to its own criteria. However, neither culture as a broad interpenetrating influence from the lifeworld, nor the institutionalized cultural codes of fragmented institutions are capable of granting societal cohesion.<sup>632</sup> At first, these pressures are low because much of the institutional integration is granted by a common cultural ground provided specially by religion and most institutions are still not functionally differentiated; but within advanced agrarian societies and, most particularly, within industrial and post-industrial societies this can be a huge problem to be dealt with.<sup>633</sup>

I will return to this problem in chapter 5, when I will argue on the special role of Constitutions in the maintenance of integration in highly differentiated societies. For now, I want to point out that social structure plays a fundamental role in maintaining high institutional integration in more complex societies compared to the large cooperative groups studied by Richerson & Boyd. In a sense, social structure is a relational property, since it emerges from the interactions between individuals, groups and institutions and, more than that, emerges from the interaction between the institutional domains (social systems) within a given society, but cannot be

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631 See, generally, Ferguson, N. (2011). *Civilization: the West and the Rest*; Ferguson, N. (2012). *The Great Degeneration: How Institutions Decay and Economies Die*. New York: Penguin. pp. 21-34.

632 See Turner, J. H. (2010a). *Theoretical Principles of Sociology*, Volume 1. pp. 193-199.

633 See Turner, J. H. (2010a). *Theoretical Principles of Sociology*, Volume 1. pp. 217-223.

reduced to them.<sup>634</sup> Over time, however, as the interaction pattern between social systems starts to be taken as expected, it is presumed to regulate the expectations concerning the functioning of one social system towards the other. As Luhmann says: "When one realizes that social structures are expectational structures, one can link this theoretical advance with systems theory. Expectations come into being by constraining ranges of possibilities. Finally, they are this constraint itself."<sup>635</sup> As a result, social structures are both the practices that produce themselves and the outcome of their self-production.<sup>636</sup>

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The purpose of this chapter has been to provide reasons to sustain that human societies came to be paradigmatic Darwinian populations, using as reference the criteria provided by Peter Godfrey-Smith. This transition entailed two consequences: the first one is that human societies became subject of natural selection in MLS2 mode. The most refined social structures allowed for the persistence and more internal development and complexity in relation to other societies, thus being more prone to selection. The second consequence – a corollary of the first – is that, as a result of MLS2 natural selection, societal features could emerge, turning out to be adaptations at the societal level.

Based partially on Luhmannian sociology, chapter 4 will be based on the argument that law is one of these adaptations. Law reinforces social structure by stabilizing normative expectations, but this brings about a diachronic question: how has law stabilized normative expectations in such different historical realities throughout human history? This question will bring us back to the end of chapter 2, when I claimed that *all* ancient human societies in the late Pleistocene were egalitarian. As we will see, the beginning of the Holocene brought a whole different scenario. Instead of being egalitarian, most societies in the last 10,000 years have been hugely

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634 Notice that here are adopted two different concepts of social structure. The first one is related to the structural properties within a particular social system, while the other is concerned with the structure of the societal system as a whole. In the following discussion, I will focus on the second sense of the term.

635 See Luhmann, N. (1995a). *Social Systems*. p. 292.

636 In a sense, this is what I understand by Giddens's dual theory of structure. See Giddens, A. (1984). *The Constitution of Society*. Cambridge: Polity Press. pp. 25-28.

marked by inequality. Why has this happened? And, more specifically, what role has law played in keeping inequality in these societies?

These questions will set the background assumptions for the last chapter, when I will consider the opposite pattern that seems to arise with the advent of constitutionalism and its ideology of freedom, autonomy and equality. Nowadays, most Western societies are constitutional democracies (or at least claim to be)<sup>637</sup> and, once again, egalitarianism seems to be a valuable feature of our political systems. But how did we get from egalitarian hunter-gatherers to inegalitarian empires and kingdoms, and then returned to an egalitarian ethos? Is it really a *return*, or is it something else? In order to address these issues properly, it is of fundamental importance to understand the role of law in regulating normative expectations in each societal moment. This is the subject to be discussed in the next chapter.

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637 See Przeworski, A. (2010). *Democracy and the Limits of Self-Government*. pp. 4-5.

#### 4. The Function of Law in an Evolutionary Theory of Stratification

Up to this point, I have discussed two major issues. Firstly, based on the dual inheritance theory, I claimed that hominin evolution structured cooperation along principles seen nowhere else in nature, as a result of the evolution of a second inheritance system – culture –, which coevolved along with our ancestors' innate psychology. The result of this coevolutionary process was the emergence of a species inclined to learn cultural beliefs and cooperate with individuals belonging to the same cultural community. This social psychology, along with cultural evolution, allowed the *Homo sapiens* to overcome the constraints imposed by kin selection and direct reciprocity (reciprocal altruism), becoming the first species whose members are capable to join forces in *large* bands composed by *non-genetically related* individuals. The emerging social unit from this process were the egalitarian bands of the Pleistocene, whose members actively monitored one another in order to prevent the expression of hierarchical tendencies.

Secondly, based on the hypothesis advanced by Richerson & Boyd, according to which group selection had a major role in hominin evolution, I discussed how the Darwinian principles could be applied to understand the evolution of human societies. A first task was to devise an explanation of how multiple levels of complexity could be integrated within a naturalistic evolutionary framework. In order to do so, and based on an admittedly controversial reading of Luhmann, I constructed a bridge between Systems Theory's sociology and social psychology with the purpose of justifying the claim that sociological patterns emerge causally from our psychology but maintain their own intrinsic autonomy. Albeit autonomous, sociological reality is constrained by psychological processes. This might seem to be a trivial point, but – at least as I see it –, it has not been satisfactorily addressed thus far.

Based on Peter Godfrey-Smith's discussion about Darwinian populations, I also advanced the claim that human societies can be seen as *full-blown* Darwinian individuals when they develop group-level structures that confer differential advantages to the whole group and which are irreducible to low-level cultural properties. In this chapter, I intend to explore this point further: that underlying the assertion that group-level structures

confer certain advantages to human societies is the assumption that they perform a function. But what does that mean exactly?

This discussion is not without purpose. As discussed, the anthropological record shows that virtually all hominin bands in the Pleistocene have been egalitarian for the last 200,000 years. Nonetheless, this scenario has dramatically changed in the last 10,000 years, when hugely stratified societies emerged. In this chapter, I claim that, to understand why this shift in human societies has happened, we have to understand the function of law as a societal structure and the role it played in this process.

##### 4.1. Functionalism and Sociology

The social sciences have debated many of these issues for a long time during the 20th century under the label of functionalism.<sup>638</sup> Although not all functionalist approaches are Darwinian in their essence, one can hardly deny that they can be easily conciliated. The most obvious Darwinian sociological example is Spencer's structural-functionalism<sup>639</sup>; but many other functional approaches could be mentioned, such as the theories developed by Parsons, Merton, Durkheim, Radcliffe-Brown or Bronislaw Malinowski, which are not directly related to the Darwinian method.

Functionalism, for the present purposes, can be broadly defined as a theoretical endeavor to establish how critical the elements of a social system are for its stability. An element is said to perform a function if it helps maintaining the system's integration, linking social structure to the dynamic variable elements of the system and providing "criteria of the importance of dynamic factors and processes within the system."<sup>640</sup>

In this section, I want to explore the idea that there is a parallelism between the way the concept of function is understood in sociology and in biology, and the purpose behind the claim that this concept is an abstract idea that is expected to emerge within any evolutionary theory. As such, both biology and functional sociology can incorporate a broader concept of evolution in their theoretical explanations.<sup>641</sup>

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638 See Turner, J. H. and Maryanski, A. M. (1979). Functionalism.

639 On this point, see Turner, J. H. and Maryanski, A. M. (1979). Functionalism. pp. 10-11.

640 In Isajiw, W. W. (2010). *Causation and Functionalism in Sociology*. New York: Routledge. pp. 39-40.

641 As Hodgson & Knudsen claim, the evolutionary framework (Generalized Darwinism, in their own words) relies "on the claim of common abstract features in



## 4.1.1. Sociological Functionalism Revisited

Functionalism is a common approach both to sociological and biological thought, and many debates carried out in one domain are exactly the same as discussed in the other. The purpose of this section is to determine the main questions proposed by sociological functionalism in order to establish, later on, how similar they are to the questions discussed by biologists, and how sociological functionalism could be fit into a Darwinian approach. In this section, I will subsequently present some questions discussed by functional social scientists such as A. R. Radcliffe-Brown, Bronislaw Malinowski, Robert K. Merton and Talcott Parsons, who are among the main representatives of this approach within sociology.<sup>642</sup>

Radcliffe-Brown was explicit on acknowledging that the use of functionalism in the social sciences was explicitly based on an analogy with the biological systems. According to him, the first systematic formulation of the concept in sociology was developed by Émile Durkheim, who defined function as the correspondence between a particular social institution and the needs of the social organism:

"Durkheim's definition is that the 'function' of a social institution is the correspondence between it and the needs of the social organism. This definition requires some elaboration. In the first place, to avoid possible ambiguity and in particular the possibility of a teleological interpretation, I would like to substitute for the term 'needs' the term 'necessary conditions of existence,' or, if the term 'need' is used, it is to be understood only in this sense. It may here be noted, as a point to be returned to, that any attempt to apply this concept of function in social science involves the assumption that there are necessary conditions of existence for human societies just as there are for animal organisms,

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both the social and the biological world; it is essentially a contention of a degree of *ontological communality* at a high level of abstraction and not at the level of detail." In Hodgson, G. M. and Knudsen, T. (2010). *Darwin's Conjecture*. p. 22.

642 Durkheim and Spencer could also be mentioned as contributors of the functional thinking. However, the main purpose of this historical reconstruction of the sociological functionalist theoretical background is not to refer to all of its history, but to discuss the main tenets of its best formulations. Here, I follow the distinction made by Jonathan Turner: Spencer and Durkheim are precursors of sociological functionalism, while Malinowski, Radcliffe-Brown, Merton and Parsons have elaborated its most complete formulation. See Turner, J. H. and Maryanski, A. M. (1979). *Functionalism*. pp. 1-27.

and that they can be discovered by the proper kind of scientific enquiry."<sup>643</sup>

In Radcliffe-Brown's approach, a social institution performs its function when it fulfils the needs of a society. The biological metaphor is almost inevitable in the words chosen by the anthropologist: society is a social *organism* with *needs*, and it *survives* when these needs are satisfied. It is also important to highlight that Radcliffe-Brown tries to avoid a teleological interpretation of the expression 'need' by proposing an alternative concept, 'necessary conditions of existence'.

Bronislaw Malinowski's social theory has also relied strongly on a functionalist framework. However, he has developed a more complex approach. Instead of just recognizing that society had some needs that have to be satisfied, he stipulated a complete hierarchy of needs. Firstly, society has to fulfill its individual members' *biological needs* for food and water intake, excretion, sex appetite, sleep, and relief from danger and pain. Although these are biological needs, they are satisfied through social structures and cultural symbols. In every society, individuals have needs that ought to be satisfied in order to assure the very maintenance of the social system — and, as such, these are the 'basic' or 'primary' needs.<sup>644</sup> Secondly, there are the instrumental needs, derived from the institutions created to fulfill the primary needs. These structures also have their own intrinsic needs which must be satisfied in order to keep the well-functioning of the broader society. These needs are organized in four groups — economic, social control, political organization and education.<sup>645</sup> There are also the symbolic or integrative needs, which refer to the necessity of symbolic integration as a means of achieving coherence amongst the various institutions into a unified whole.<sup>646</sup>

Other functional approaches are also worth-mentioning, such as the Davis-Moore hypothesis, developed by Kingsley Davis and Wilbert Moore, which provided a functional explanation for the emergence of stratified so-

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643 In Radcliffe-Brown, A. R. (1935). On the Concept of Function in Social Science. *American Anthropologist, New Series*, 394-402.

644 On this point, see Malinowski, B. (2002). A Scientific Theory of Culture and Other Essays. p. 140.

645 See Malinowski, B. (2002). A Scientific Theory of Culture and Other Essays. p. 215.

646 See Turner, J. H. and Maryanski, A. M. (1979). Functionalism. p. 54. See also Malinowski, B. (2002). A Scientific Theory of Culture and Other Essays. pp. 225-226.

cieties. According to them, stratification is a selected mechanism because it provides that functionally relevant social positions are filled with qualified people. By allocating resources unequally, it rewards individuals that perform functionally important roles better, therefore assuring that important societal functions will be performed efficiently.<sup>647</sup>

Robert K. Merton's *Social Theory and Social Structure* (1949) has developed the functionalist framework through three postulates: *functional unity*, *universal functionalism* and the postulate of *indispensability*. The assumption of *functional unity* means that social systems are the product of highly integrated elements and, as a result, social structures contribute to the unity of the whole system.<sup>648</sup> *Universal functionalism* holds that all social structures perform positive functions for the maintenance of the social system.<sup>649</sup> In other words, there are no useless social structures. The *postulate of indispensability*, on its turn, affirms that the persistence of social systems depends on the satisfaction of their functional requisites/needs and that certain cultural and social structures operate in order to fulfill this function.<sup>650</sup>

Merton also distinguished between *manifest* and *latent* functions. Manifest functions are the objective results of the systemic operations that contribute to the adaptation of the system, which are recognized as such by the individual members of that social system. For instance, schools perform the function of educating children in order to develop skills that will be needed in the future, and this is publicly acknowledged as the educational system's function. But schools also might bring about other consequences that might not be so well-recognized; they might, for example, create a social space for entertainment. This would be a latent function of schools, because it would be neither intended nor recognized as such.<sup>651</sup>

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647 See Davis, K. and Moore, W. E. (1945). Some Principles of Stratification. *American Sociological Review*, 10, 242-247.

648 See Merton, R. K. (1934). Durkheim's Division of Labor in Society. *American Journal of Sociology*, 40(3), 319-328.

649 See Merton, R. K. (1934). Durkheim's Division of Labor in Society. pp. 30-32.

650 See Merton, R. K. (1934). Durkheim's Division of Labor in Society. p. 33.

651 See Merton, R. K. (1966). *Social Theory and Social Structure*. New York: The Free Press. p. 51. Charles Crothers wrote a good review on this point in Crothers, C. (1987). *Robert K. Merton*. Chichester: Ellis Horwood. pp. 68-69 The sociologist Peter Berger gives other examples of latent functions: "To discover this inner dynamic of society, therefore, the sociologist must frequently disregard the answers that the social actors themselves would give to his questions and look for explanations that are hidden from their own awareness. This essentially Durkheimian approach has been carried over into the theoretical approach now

Talcott Parsons' contribution to a functional thought on sociology is also of paramount importance. His analysis, an attempt to integrate both the structural and voluntaristic aspects of social reality, focuses on action systems, which act in order to accomplish specific goals. Action systems can be analytically separated in four classes: personality, cultural, social and [behavioral] organismic.<sup>652</sup>

*Personality systems* account for psychological dispositions, motivational and cognitive states and skills that actors possess and utilize in order to fulfill their goals. The unit of analysis in the personality system is the individual, who acts on the basis of individual needs, motives and attitudes, and strives to achieve personal gratification through the satisfaction of their needs (goal-attainment).<sup>653</sup> *Cultural systems* consist of meanings, the symbolic system internalized by individuals which influences them in the means through which they interact with one another, providing a com-

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called functionalism. In functional analysis society is analyzed in terms of its own workings as a system, workings that are often obscure or opaque to those acting within the system. The contemporary American sociologist Robert Merton has expressed this approach well in his concepts of 'manifest' and 'latent' functions. The former are the conscious and deliberate functions of social processes, the latter the unconscious and unintended ones.

Thus the 'manifest' function of antigambling legislation may be to suppress gambling, its 'latent' function to create an illegal empire for the gambling syndicates. Or Christian missions in parts of Africa 'manifestly' tried to convert Africans to Christianity, 'latently' helped to destroy the indigenous tribal cultures and this provided an important impetus toward rapid social transformation. Or the control of the Communist Party over all sectors of social life in Russia 'manifestly' was to assure the continued dominance of the revolutionary ethos, 'latently' created a new class of comfortable bureaucrats uncannily bourgeois in its aspirations and increasingly disinclined toward the self-denial of Bolshevik dedication. Or the 'manifest' function of many voluntary associations in America is sociability and public service, the 'latent' function to attach status indices to those permitted to belong to such associations." See Berger, P. L. (2011). *Invitation to Sociology* (Kindle ed.). New York: Open Road Media. pp. 614-623.

652 Originally, in *The Social System* and in *Toward a General Theory of Social Action*, both published in 1951, Parsons admitted the existence of three classes of action systems: the personality, the cultural and the social systems. Later on, he added the organismic system due to the need to take into account not only the psychological level, but also the biological ontological level. See Parsons, T. (1977). *Social Systems and the Evolution of Action Theory*. New York: The Free Press. pp. 71-85.

653 See Parsons, T. (1977). *Social Systems and the Evolution of Action Theory*. pp. 59-60.

mon symbolic structure that holds society together as a single body through social control.<sup>654</sup> Its unit of analysis is not individuals or society as such, but *meaning* itself. *Social systems*, on their turn, concern the roles revealed by the interactions between at least two individuals. These interactions reveal sets of expectations held by the interaction individuals, which stabilize the patterns of social relations.<sup>655</sup> The *behavioral organismic system* relates to the biological foundations of individuality. Parsons acknowledges the relevance of biological constituency in order to understand individual action, considering that it is a source of needs and motivations which needs to be satisfied and which lays down a set of biological and physical parameters for action.<sup>656</sup>

Sociality is understood, in Parsonian terms, as a result of the cybernetic hierarchy of control between the four kinds of action systems. Like Malinowski and Radcliffe-Brown, Parsons held that action systems must meet some requisites in order to survive. He proposed four of them: *adaptation, integration, goal attainment and latency* - his famous scheme known as AGIL.<sup>657</sup> All systems must *adapt* by seeking resources in their environment and converting them into the system. They must also maintain coherency among themselves in order to *integrate* the structure of the whole and inhibit centrifugal forces that can potentially disrupt systemic stability. Another requisite is that action systems must set *goals* and use their resources in order to achieve them. The last requisite, *latency*, is a result of two other requisites: (i) the need to maintain a stable social pattern that can organize the units of action provided by each system; and (ii) the demand for reduced tension between the units of the system.<sup>658</sup>

Although each system has to provide for the satisfaction of all four requisites in order to survive, at the societal level each system specializes in one such function. In this sense, society is a nested set of social systems and subsystems which provides for the performance of a specific function at the societal level, while at the same time performing all the four functions at its own ontological level. For instance, Parsons proposed that the Economic system, by providing resources and their redistribution, performs the function of *adaptation*; the Government, in its turn, by setting goals and using economic resources to meet them, acts as a *goal-attainment* structure;

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654 See Parsons, T. (2012). The Social System. p. 94, p.530.

655 See Parsons, T. (2012). The Social System. pp. 74-75.

656 See Parsons, T. (2012). The Social System. p. 106.

657 See Turner, J. H. and Maryanski, A. M. (1979). Functionalism. p. 74.

658 See Parsons, T. (2012). The Social System. p. 39.

Law provides *integration*, especially in complex and differentiated societies;<sup>659</sup> and the Family attains *latency* purposes by providing individual socialization within the values held by the community and by comprehensively teaching the expectations concerning the roles that exist in a particular society.<sup>660</sup>

The structures of each subsystem must also satisfy all of these requisites in order to endure. A business (an economic unit), for example, must gather the resources it needs (money); produce, announce and sell its goods in the market (goal-attainment); inculcate in its employees and managers the values of the firm (integration); and provide a structure of conflict resolution and education in order to reduce tensions and keep internal stability (latency). A court (a legal unit), on its turn, must gather the legal (its institutional competences) and economic resources (its budget) it needs in order to exist and run adequately (adaptation); operate through the maintenance of a structure that decides legal cases (goal-attainment); establish a legal culture among the judges and the court clerks and other employees (integration); and keep its internal functioning through administrative procedures and internal normative acts (latency).

According to Parsons, action systems are nested within a cybernetic hierarchy in which the lower-level systems supply the 'energy' for the higher-level systems, which on their turn organize and control lower-level action through the implementation of informational content. Behavioral organismic systems provide the energetic basis for the operations of personality systems, which control the behavioral system through informational inputs. In the same fashion, social systems receive energetic inputs from personality systems and provide [social] informational control for them; whereas cultural systems informationally organize social systems while receiving energy from them.<sup>661</sup>

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659 See Treviño, A. J. (2008). *Talcott Parsons on Law and the Legal System*. Newcastle: Cambridge Scholars Publishing. pp. 149-153.

660 See Turner, J. H. and Maryanski, A. M. (1979). Functionalism. pp. 77-78.

661 Parson's approach was decisively influenced by biological research, as the American sociologist acknowledges in this excerpt: "The central theme of this line of thought is the relation between the genetic and selective components of the determinants of both organic maintenance and evolutionary change. The cybernetic formula concerns the possibility that, under appropriate conditions, systems high in information but low in energy can control systems high in energy but low in information. There seems to be general agreement in biological circles that the genetic factors in the biological process are predominantly centered on informational content and that such energy factors as the organic energy released by metabolic processes of oxidation can be and are, in fact, controlled by

The point here is not to discuss the whole functionalist tradition in the social sciences, but to affirm this point of view as a possible bridge between sociology and Darwinian biology. Although the functionalist tradition is not part of mainstream sociology anymore, it also has not — to use the words of the leading American sociologist Jonathan Turner — gone away. The main virtue of functionalism has always laid on the questions it asks, not on the answers it has provided so far:

"Functionalism has not disappeared because it always asked an interesting question: What must occur if a population is to survive and sustain itself in both its biophysical and sociocultural environments? Unfortunately, functional sociology's answer to this interesting question took a short-cut by positing a list of functional needs or requisites for survival and then categorizing social structures by the particular needs that they met. In biology, especially in medicine, it is quite common to employ functional analysis in describing the functions of various organs and systems; in these functional statements, a structure or system is described in terms of what it does for maintaining the body in its environment."<sup>663</sup>

To this effect, the reason for the failure of early sociology in answering the correctly asked question about the survival of a population in physical, biological and sociocultural environments lies on the lack of understanding about the very nature of functional analysis. Instead of undertaking a *descriptive* project of compiling a list of social needs that should be satisfied through the functional institutions, as Malinowski, Radcliffe-Brown and other social theorists attempted, we should focus instead on the *explanatory* enterprise of providing an answer to *why* a specific set of features satisfies those needs instead of others. And the role model of this kind of explanation is biological functionalism: instead of *describing* needs and the structures that satisfy those needs, it attempts to *explain why* the structures that fulfill them were *selected*.

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these informational factors." In Parsons, T. (1977). *Social Systems and the Evolution of Action Theory*. pp. 118-121. See also Turner, J. H. and Maryanski, A. M. (1979). *Functionalism*. pp. 80-81.

662 See Turner, J. H. (2010a). *Theoretical Principles of Sociology*, Volume 1. p. 120; Parsons, T. (1977). *Social Systems and the Evolution of Action Theory*. p. 120.

663 See Turner, J. H. (2010a). *Theoretical Principles of Sociology*, Volume 1. p. 22.

"Biotic structures are the outcome of what are often termed the 'forces of evolution,' one of which is natural selection (the others being mutation, gene flow, and genetic drift). Variations in the structures of life forms are the product of "selection" and other evolutionary forces as they worked on phenotypes and the underlying genotype of life forms, with those traits that enhance fitness (i.e., the capacity to reproduce) being selected over those that do not increase or even reduce fitness in resource niches within a habitat. Over time, these forces of evolution could produce the wide variety of life forms that constitute the biotic world. Sociological functionalism rarely made the argument about the process of evolution as ultimately driven by a few forces that increase the variations on which selection could work; rather, analysis moved immediately to a kind of cross-tabulation between structures and functional needs. As a result, functional theories did not conceptualize social dynamics, or the forces generating sociocultural formations."<sup>664</sup>

Although functionalism was a major theoretical strand in sociology, it has been abandoned in the last decades in favor of other theories that became dominant, such as Anthony Giddens' structuration theory,<sup>665</sup> Margaret Archer's social morphogenetic approach,<sup>666</sup> hermeneutic thinking, post-structuralism, symbolic interactionism and critical theory.<sup>667</sup> The proliferation of alternatives has been so widespread that many sociologists even came to say that "functionalism is dead as a dodo,"<sup>668</sup> although it has survived in the work, for example, of a prestigious sociologist such as Niklas Luhmann,<sup>669</sup> who will be referred to later on.

#### 4.1.2. The Concept of Function in Biology

For now, it is important to notice that functionalist thought is a necessary building block of the *generalized Darwinian* evolutionary approach that is beginning to be outlined here. Even though functionalism is not as appeal-

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664 In Turner, J. H. (2010a). *Theoretical Principles of Sociology*, Volume 1. p. 22.

665 See Giddens, A. (1984). *The Constitution of Society*.

666 See Archer, M. S. (Ed.). (2013). *Social Morphogenesis*.

667 See Turner, J. H. and Giddens, A. (Eds.). (1996). *Social Theory Today*. Stanford: Stanford University Press. pp. 2-3.

668 See Barnes, B. (1995). *The Elements Of Social Theory*. New York: Routledge. p. 37.

669 See Luhmann, N. (1995a). *Social Systems*. pp. 12-58.



ing as it was once, it can survive as an important tradition if we change the focus of the functional analysis. As the American sociologist Jonathan Turner states, functionalist sociology must focus on selection issues in order to explain how social structures are selected in order to perform certain functions, instead of describing social needs and the social structures that satisfy them. Functionalism can survive as an important tradition if its analyses concentrate on describing the selection processes of sociocultural structures through the understanding of how evolutionary forces act upon them.<sup>670</sup>

I would add that the functional analysis must clearly specify the very concept of *function* as applied in the sociological thought. This is a good candidate to be a generalizable concept in the Generalized Darwinian approach because the very usage of function in sociology was at first adopted as an analogy from the biological thought.<sup>671</sup> However, there is more than mere analogical thinking at stake. Whenever a biologist or sociologist tries to describe the function of a particular feature, they are applying a more abstract concept to their object of study, and not merely using the biological concept as a reference point. In this sense, the sociologist is not applying a biological concept to sociological phenomena, but referring to a more abstract principle that can be specified differently in both domains.<sup>672</sup>

This is the case of the concept of *function*, because sociological functionalism asks similar questions to those asked by natural scientists when studying the function of biological traits. *What do the lungs do for the survival of the body? What is the function of the eyes?* In the same vein, sociological functional analysis examines social phenomena in terms of the consequences for the maintenance of sociostructural equilibrium and change. *What is the function of law? How does the family help spread the values that integrate a community?* By asking these questions, alike biologists, sociologists are specifying the purpose of social institutions/systems/roles.

Biologists have discussed the concept of function over the last few decades, and this discussion is useful to understand this concept in a generalized sense, in which it can also be understood in the sociological thinking. This is not to say that the biological explanation precedes sociology, but to assume that the biological discussion can reveal something about

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670 See Turner, J. H. (2010a). *Theoretical Principles of Sociology*, Volume 1. p. 23.

671 On this point, see Barnes, B. (1995). *The Elements Of Social Theory*. p. 43. See also Turner, J. H. and Maryanski, A. M. (1979). *Functionalism*. pp. xi-xii.

672 See Hodgson, G. M. and Knudsen, T. (2010). *Darwin's Conjecture*. p. 67.

the idea of function that can be regarded as part of a more abstract concept.

*The point to be stressed here is that the idea of function can easily fit within an evolutionary approach in the sense that a social, cultural or biological feature has a function if it has been selected due to the performance of that very function.* In order to sustain this conclusion and apply it to the sociological domain, it will be useful to review some of the discussions about the concept of function in biology over the last 40 years. By elucidating the concept of function in a more abstract fashion, it will then be possible to find a work-around solution to the very issues that have led functionalism to dead ends in sociology: (i) that functionalism is ahistorical, (ii) conservative and (iii) unable to account for social change.<sup>673</sup>

Nowadays, there are two broad conceptualizations of function that came to be known as the *etiological conception of function* and the *analytical conception of function*.<sup>674</sup>

The etiological conception was originally developed by Larry Wright, who, in 1973, proposed a simple account to deal with the problem of logically defining the structure of functional explanation. In his formulation, saying that the function of X is Z means that (i) X is there because it does Z and (ii) Z is the result of X being there.<sup>675</sup> At first, this concept of function seems satisfactory. When we say that the function of the heart is to pump blood, it means that the heart is in the body because it pumps blood and blood being pumped is the result of the heart being there. In the same sense, a sociological analog could be the following: if we say that the function of law is to stabilize normative expectations in a society, then a society has a legal system because (i) it stabilizes normative expectations and (ii) normative stabilization occurs as a result of the operation of the legal system.

Nonetheless, Wright's concept of function is flawed because it is too broad, covering cases in which no one would recognize that the studied feature has a function. Reviewing the literature on the concept of function, Peter Godfrey-Smith describes a counterexample proposed by Boorse in 1976: "when a scientist sees a leak in a gas hose, but is rendered uncon-

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673 For more details on this point, see Turner, J. H. and Maryanski, A. M. (1979). Functionalism. pp. 109-118; Barnes, B. (1995). *The Elements Of Social Theory*. p. 46.

674 See Chediak, K. (2011). *Função e Explicações Funcionais em Biologia*. In Abrantes (Ed.), (pp. 83-96). Porto Alegre: Artmed. p. 87.

675 See Wright, L. (1973). Functions. *The Philosophical Review*, 82, 139-168.

scious before it can be fixed, on Wright's schema the break has the function of releasing gas. The break is there because it releases gas, keeping the scientist immobilized, and the leaking gas is a consequence of the break in the hose."<sup>676</sup> However, Godfrey-Smith also recognizes that Wright did not have the purpose of developing a strictly formal concept of function, and to that extent he left many details to pragmatic factors which could exclude examples like this from the functional analysis.<sup>677</sup>

Ruth Millikan introduced a *historical* approach by introducing an evolutionary perspective to the etiological conception. According to her, A has a *direct proper function*<sup>678</sup> to perform X if it is a member of a special kind of family of tokens which are similar to one another because they have derived from a reproductive process in which something like copying has happened and, as a result, has generated more tokens of a certain type, all of which are capable to perform X – what she defines as a "reproductively established family." In this sense, one heart is similar to another, and this happens as the result of an evolutionary history in which the heart descended from a replicating process, which can be said to be a copy of an earlier heart. Proper functions only exist when they are shared among family members as a result of replication. In Millikan's sense, a function can be defined in the following way: "[...] a family member's function is whatever prior members did that explains why current members exist."<sup>679</sup>

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676 In Godfrey-Smith, P. R. (1994). A Modern History Theory of Functions. *Noûs*, 28(3), 344-362.

677 In Godfrey-Smith, P. R. (1994). A Modern History Theory of Functions. p. 346.

678 Millikan distinguishes between direct and derived proper functions. The former refers to tokens whose function is shared among other tokens due to their evolutionary history and relates to the production of the token possessing that function, whereas the latter refers to a function derived from a device that displays a direct proper function. In her own words, "The proper functions of adapted devices are derived from proper functions of the devices that produce them that lie *beyond* the production of these adapted devices themselves. I will call the proper functions of adapted devices *derived proper functions*." In Millikan, R. G. (2001). *Language, Thought, and Other Biological Categories*. Cambridge: The MIT Press. p. 41 As an example, Millikan mentions bee dance patterns. They have no direct function, because they are not copies of earlier dance patterns, but they are caused by innate devices implanted on the bees. However, it's undeniable that they have the function of displaying to other bees the path to the nectar. See Millikan, R. G. (2001). *Language, Thought, and Other Biological Categories*. p. 42.

679 In Godfrey-Smith, P. R. (1994). A Modern History Theory of Functions. p. 347.

The etiological concept of function assumes that functional explanations must explain why a certain trait/organ/behavior exists<sup>680</sup>, and, in order to do this, it is necessary to adduce an evolutionary causal link between past and current functions. Considering only the current dispositions of a trait is not enough because the differences between *function* and *accidental effects* cannot be fully acknowledged. As Karla Chediak says, the heart pumps blood, but it also produces noise.<sup>681</sup> Only when we take into account the evolutionary background and the systemic implications of a trait, is it possible to identify what the function is and what the accidental effects are.

Also, the etiological conception of function embodies a *normative aspect*. Following Peirce's distinction between *type* and *token*, Millikan states that the fact that a particular token does not perform a function well is not an objection for assigning the function to its type. The function of hearts (a *type*) is to pump blood even if a particular heart (a *token*) is dysfunctional. Obviously, this is not a prescriptive notion of normativity in the sense that the token has the *duty* to act as assumed, but only in a weaker and teleological sense in which the proper function of a device can be understood as an assumption about what it is supposed to do. Notice that this teleological approach does not presume a conscious agent. The *telos* of a device is the result of cumulative effects of selection over a sufficient amount of time<sup>682</sup>. Millikan's purpose is to elaborate a teleological and naturalized concept of function, in which natural selection assigns functions to traits without relying on a conscious planner.<sup>683</sup> In her proposal, a trait possesses a function for having been selected due to the effects of that function in terms of the fitness of a living system within a given population.<sup>684</sup>

Robert Cummins proposed an alternative view which came to be known as the analytical conception of function. Functional explanations aim to understand the role of an element within a particular system. In his formulation, "[a] function-ascribing statement explains the presence of the functionally characterized item *i* in a system *s* by pointing out that *i* is present in *s* because it has certain effects on *s*."<sup>685</sup> The analytical conception requires that we focus on the system as a whole in order to devise the func-

680 See Chediak, K. (2011). *Função e Explicações Funcionais em Biologia*. p. 87.

681 See Chediak, K. (2011). *Função e Explicações Funcionais em Biologia*. p. 87.

682 See Chediak, K. (2011). *Função e Explicações Funcionais em Biologia*. p. 88.

683 See Millikan, R. G. (2001). *Language, Thought, and Other Biological Categories*. p. 17.

684 See Chediak, K. (2011). *Função e Explicações Funcionais em Biologia*. p. 89.

685 Cummins, R. (1975). *Functional Analysis*. *The Journal of Philosophy*, 72, 741-765.

tion of the element and, as a result, evolutionary considerations are not necessary to understand what the function of a particular trait is.<sup>686</sup> It is only necessary to determine the system considered and to establish how that particular trait contributes to the overall capacity of the system.<sup>687</sup>

The Brazilian philosopher Karla Chediak acknowledges the relevance of Cummin's analytical formulation, but she questions the completeness of his approach. According to her, the analytical conception is unable to distinguish between the function of a (biological) trait and its mere effects because it does not exhibit any regulatory criteria through which the expected role of a trait to the well-functioning of a system could be identified.<sup>688</sup> The relevance of Cummins' analytical approach, according to her, is that it points out some limits to the etiological conception, specially the assumption that every functional trait is the result of natural selection and that natural selection is necessary for the emergence of a function.<sup>689</sup>

My point here is not to reconstruct the entire debate over the concept of function, but to state some general points that will be relevant later on. Here, I agree with Karla Chediak: both conceptions are useful because they highlight relevant features of the concept of function. The etiological concept (i) underlines the evolutionary reasons for the emergence of a function, while the analytical perspective (ii) downplays the relevance of natural selection as the necessary reason for the emergence and stabilization of a trait while (iii) bringing to the foreground the synchronic relationship between a system and its functional elements.

This partial conclusion leads us to the following question: is it possible to reconcile the analytical and etiological concepts in what concerns the evolutionary explanations for the emergence of a function? Peter Godfrey-Smith seems to have found an answer to this question in his 1994 article, *A Modern History Theory of Functions*.<sup>690</sup> He considers two competing diachronic views about the concept of function. Firstly, the etiological account assumes that the only events that can explain the function of a trait have happened in the past. Secondly, there are those who sustain what he calls *forward-looking accounts*, a theoretical perspective advanced by Cummins, Bigelow and Pargetter, according to which functions are dispositions to succeed under natural selection *in the present*. Godfrey-Smith rejects this

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686 Cummins, R. (1975). *Functional Analysis*. p. 745.

687 See Chediak, K. (2011). *Função e Explicações Funcionais em Biologia*. p. 90.

688 See Chediak, K. (2011). *Função e Explicações Funcionais em Biologia*. p. 90.

689 See Chediak, K. (2011). *Função e Explicações Funcionais em Biologia*. p. 90.

690 In Godfrey-Smith, P. R. (1994). *A Modern History Theory of Functions*.

view because it does not offer many details on functional explanations and it ends up making undeterminable demands for the future. After all, only in the future will it be possible to determine what the selected dispositions were on that analyzed present (which will be, then, in the past).<sup>691</sup>

Godfrey-Smith proposes an intermediate approach on the problem, which he calls *the modern history* view. The etiological conception is unacceptable because it does not distinguish between functional and evolutionary explanations, but the forward-looking proposal is also unacceptable for presenting a distorted understanding of functions.<sup>692</sup> As an alternative, he proposes a third option, which holds *functional explanation as a kind of evolutionary explanation*. Functions are understood as "dispositions and powers which explain the recent maintenance of a trait in a selective context."<sup>693</sup> Both the *present* (at least, the recent past) and the *past* are relevant, but the relevance of the past fades over time. Many traits selected in the ancient past may have persisted and not because their function is being selected in the present, but simply for inertial reasons. Since a functional trait of the past may not perform the same function in the present<sup>694</sup>, the analysis must focus on the recent past in order to evaluate if the trait still is being selected for the function it performs.<sup>695</sup> This does not mean that the

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691 In In Godfrey-Smith, P. R. (1994). A Modern History Theory of Functions. p. 353.

692 See Godfrey-Smith, P. R. (1994). A Modern History Theory of Functions. p. 355.

693 In Godfrey-Smith, P. R. (1994). A Modern History Theory of Functions. p. 356.

694 As Godfrey-Smith affirms: "Perhaps traits are, as a matter of biological fact, retained largely through various kinds of inertia. Perhaps there is not constant phenotypic variation in many characters, or new variants are eliminated primarily for non-selective reasons. That is, perhaps many traits around now are not around because of things they have been doing. Then many modern-historical function statements will be false. If functions are to be understood as explanatory, in Wright's sense, there is no avoiding risks of this sort." In Godfrey-Smith, P. R. (1994). A Modern History Theory of Functions. p. 357.

695 Godfrey-Smith reframes the exaptation debate advanced by Gould and Vrba. See Gould, S. J. and Vrba, E. S. (1982). Exaptation-A Missing Term in the Science of Form. *Paleobiology*, 8(1), 4-15. According to them, it is necessary to distinguish between exaptations and adaptations. Adaptations are features selected for the function they perform in the present, while exaptations are features which were selected for one specific task, or that just happened to occur with no apparent selectionist explanation, and which are selected further for other purposes. In Godfrey-Smith's proposal, exaptations are adaptations selected in a recent past. Godfrey-Smith, P. R. (1994). A Modern History Theory of Functions. p. 357.

analysis should not take the ancient evolutionary past into account, but only that the recent past is more relevant to understanding the selection of a functional trait. As a result, Godfrey-Smith defines function in the following terms:

"The function of *m* is to *F* if:

- (i) *m* is a member of family *T*,
- (ii) members of family *T* are components of biologically real systems of type *S*,
- (iii) among the properties copied between members of *T* is property or property cluster *C*, which can do *F*,
- (iv) one reason members of *T* such as *m* exist now is the fact that past members of *T* were successful under selection in the recent past, through positively contributing to the fitness of systems of type *S*, and
- (v) members of *T* were selected because they did *F*, through having *C*."<sup>696</sup>

Godfrey-Smith's concept retains both etiological (elements i, iii and iv) and analytical (element ii and iv) considerations. The (iv) element is a key component of the definition because it encompasses both etiological and analytical concerns, by stating that a type (*T*) has been selected in the recent past (etiological approach) because it positively contributed to the fitness of system *S* (analytical perspective).

#### 4.1.3. Function: An Abstract Concept of Evolutionary Thought

This description of both the sociological and biological discussions concerning the concept of function allows us to consider how similar the questions raised in such different domains are.

This is not a surprise. As stated before, many sociologists have derived their functional view from a conscious analogy with the biological thought. Expressions such as 'social *organism*' and 'social *needs*', although used by Spencer,<sup>697</sup> Durkheim<sup>698</sup> and Radcliffe-Brown<sup>699</sup> mainly as a

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<sup>696</sup> In Godfrey-Smith, P. R. (1994). *A Modern History Theory of Functions*. p. 359.

<sup>697</sup> See Simon, W. M. (1960). Herbert Spencer and the "Social Organism." *Journal of the History of Ideas*, 21, 294-299.

<sup>698</sup> See, e.g., Durkheim, É. (1994). *The Division of Labour in Society* (Halls, Trans.): The Macmillan Press Ltd. p. 155.

<sup>699</sup> See Radcliffe-Brown, A. R. (1935). *On the Concept of Function in Social Science*. p. 394.

metaphor,<sup>700</sup> reveal the adoption of a concept of function as an implicit organizational feature that can, in principle, be applied both to the sociological and biological domains.

This statement can be backed up by an analysis of the way in which the term 'social organism' is used in sociological literature. This metaphor has accompanied social studies since ancient times, as it can be observed in Plato's Republic, but in the last three centuries it has been influenced by the scientific advances in the study of biological nature.<sup>701</sup> However, more than subordinating societal principles to biological science, much of the sociological thought since the 19th century aimed to free sociology from the domination of biology. Émile Durkheim defined social facts as an autonomous arena, independent from biological and psychological facts.<sup>702</sup> Nonetheless, Durkheim could not abandon an organismic understanding of society. Following Spencer in this point,<sup>703</sup> he sustained that organismic structures performed a function when they embodied processes that satisfied certain needs (or, in Radcliffe-Brown's words, necessary conditions of existence) of the organism.<sup>704</sup> The relevance of organismic conceptualization was also praised by Talcott Parsons, who celebrated Spencer's organismic approach by stating that his ideas of society as composed of self-regulating systems and functional specialization/differentiation could still be employed to frame an analytic sociological scheme.<sup>705</sup>

The adoption of the organismic metaphor in sociology reveals two assumptions of the early sociological thought. First, it recognized the exis-

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700 Levine notes that Spencer is an exception, since he thought that society was in fact an organism: "Spencer leapt deliberately from simile to metaphor. It is not enough to say that society is like an organism, he declaimed; society is an organism. Like organic aggregates, Spencer argued, societal aggregates exhibit growth. Like living bodies, social bodies increase in structure as they increase in size. And in both, the differences in structure are accompanied by progressive differentiation of functions. In both cases, the internally differentiated functions are so related that they are mutually determined and mutually dependent." In Levine, D. N. (1995). The Organism Metaphor in Sociology. *Social Research*, 62(2), 239.

701 In Levine, D. N. (1995). The Organism Metaphor in Sociology.

702 See Durkheim, É. (1962). The Rules of the Sociological Method.

703 See Levine, D. N. (1995). The Organism Metaphor in Sociology.

704 See Levine, D. N. (1995). The Organism Metaphor in Sociology.

705 See Parsons, T. (1949). *The Structure of Social Action*. Glencoe: The Free Press. p. 4 This is not to say that Parsons endorsed Spencer's individualistic evolutionary approach, but only to acknowledge his recognition of the relevance of Spencer's thought. On this point, See Levine, D. N. (1995). The Organism Metaphor in Sociology.



tence of similarities between processes happening in both biological organisms and societies. Although these similarities can be featured as an analogy, they can also be understood as the acknowledgement that abstract principles of organization might be applicable, in principle, both to biology and sociology. As a matter of fact, this is the position explicitly adopted by the German sociologist Niklas Luhmann. Although rejecting the organismic metaphor in favor of a systemic approach more concerned with the distinction system/environment than with the relationship between the whole and its parts,<sup>706</sup> he thought that both living systems and societies were similarly organized as autopoiesis, an abstract principle of organization extracted from Maturana and Varela's biological theory.<sup>707</sup> Since Luhmann's theory will be explored in depth in the next chapters, I will not further describe his theory for now. The point is that his theory is a good exemplar to demonstrate my claim that an understanding of biological systems and societies might reveal that some abstract principles of organization might be legitimately applicable to both domains.

Second, the organismic metaphor in sociology also uncovers the assumption that sociologists have adopted the *analytical concept of function*. By describing societies as wholes with parts that performed functions essential for the survival and well-being of the holistic organism, sociologists have adopted a conception of function focused on the role of elements in social systems. Institutions and social subsystems are described in relation to the effects of their performance on the broader social system. It is hard not to understand Parsons' AGIL scheme, or Malinowski's social needs and Radcliffe-Brown's functional requisites in terms of the already cited concept of function developed by Cummins: "[a] function-ascribing statement explains the presence of the functionally characterized item *i* in a system *s* by pointing out that *i* is present in *s* because it has certain effects on *s*."<sup>708</sup>

If my evaluation is correct, then, most classical sociological analyses described in chapter 3 were focused on a static and synchronic concept of function, useful for understanding the relationship between a social institution/social subsystem and a broader social system, but lacking a diachronic perspective that could explain social evolution. Questions such as "how did the function of a social system come to emerge" could hardly be

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706 See Luhmann, N. (1995a). Social Systems. pp. 5-6.

707 See Luhmann, N. (1995a). Social Systems. p. 219. See also Maturana, H. R. and Varela, F. J. (1998). *De Máquinas y Seres Vivos*. Santiago: Editorial Universitaria.

708 See Cummins, R. (1975). Functional Analysis. p. 741.

asked within this framework, which only acknowledges already existing and fully operational social systems. Sociological functionalism has been criticized precisely on the grounds of being conservative and unable to cope with social change, especially radical change.<sup>709</sup>

Nevertheless, the idea of social change has been discussed in functional sociology, and in some aspects, the debate has been posited in terms that resemble the *etiological conception of function* in biology. I highlight two sociological examples from the sociological work of Spencer and Parsons.

Herbert Spencer's approach entailed an evolutionary view on the concept of function. In his perspective, a progressive growth in the size and differentiation of a society required the emergence of novel structures that performed functions required to maintain the integration of the whole body of society.<sup>710</sup> In his view, a process similar to natural selection would explain the evolution of better integrated societies, in which structures that performed the functions needed to maintain a more complex societal organization would be selected.

In a conflict between different societies, those displaying social structures better adapted to perform the functions needed for the sustenance of differentiated societies would survive and the others, less adapted, would perish. In this process, more complex societies would survive, while simpler societies would fade and disappear. Therefore, it is not a surprise that Spencer coined the expression 'survival of the fittest', which was later on associated with Charles Darwin's theory of natural selection.<sup>711</sup>

Spencer's concept of function can be read through etiological lenses because it is devised not only to explain the maintenance of homeostasis in an internal society through the satisfaction of its internal needs, but also to provide a theoretical understanding of how different functional structures emerge as a result of the system's evolution.

The theory of social change by Harvard's influential sociologist Talcott Parsons can also be read through an etiological sense of function. In *The Social System*, Parsons' main concern was to explain how a social system can be maintained in equilibrium through mechanisms that integrate cultural and personality systems into stable patterns of interaction and per-

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709 See Turner, J. H. and Maryanski, A. M. (1979). Functionalism. p. 116. See also Barnes, B. (1995). *The Elements Of Social Theory*. p. 44.

710 See Turner, J. H. and Maryanski, A. M. (1979). Functionalism. pp. 10-11. See also Turner, J. H. and Giddens, A. (Eds.). (1996). *Social Theory Today*. p. 76.

711 On Herbert Spencer sociology, see Turner, J. H. and Giddens, A. (Eds.). (1996). *Social Theory Today*. pp. 59-101.

form functions that warrant the survival of the social system as such (his AGIL scheme). In his approach, social structures perform functions that promote the equilibrium of the system – pretty much like the analytical sense of function in the biological thought.

However, later on in this book, Parsons faces the problem of social change. His first point is that social change can be understood in two common senses: changes *within* the system and processes of change *of* the system.<sup>712</sup> Changes within the system are changes only in a trivial sense, as they refer to processes of maintenance of dynamic equilibrium. Internal changes happen, but they constitute processes of change that keep the boundaries of the system and its main features intact.<sup>713</sup> The other kind of social change refers to changes *of* the social system, in which there is a change in its very structural equilibrium. Some changes within the system or in its environment produce such a strain in the system that a re-equilibrating process sets motion. This does not happen only in the domain of social systems; it happens, for instance, in the process of socialization, when a mind (a personality system) adapts itself to the demands of cultural and social systems by altering its behavioral patterns in order to conform.<sup>714</sup> Nonetheless, change within one system might disrupt the systemic equilibrium in such a way that a new equilibrium must emerge through structural changes in other systems.

The causes of changes are various and cannot be determined aprioristically. Radical changes in the belief (cultural) system can lead to structural changes of the social system. Changes in the physical environment can lead to the exhaustion of a strategic resource and then the economic system can fail to perform its adaptive function of gathering and redistributing resources, what can lead to a restructuring of the social system of roles. Surprisingly, Parsons even assumes that biological changes in the genetic constitution of a given population can be the source of structural changes.<sup>715</sup> Unlike Marxists, who imposed a priority of economic factors over social change, Parsons thought that any change could lead to social

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712 See Parsons, T. (2012). *The Social System*. p. 480.

713 See Parsons, T. (2012). *The Social System*. pp. 482-483.

714 See Parsons, T. (2012). *The Social System*. p. 491.

715 According to Parsons: "The impetus to a process of change may perfectly well originate in the development of a cultural configuration, such as a development of science, or of religious ideas. It may also perfectly well originate in a change in the genetic constitution of the population, or a shift in the physical environment such as the exhaustion of a strategic resource." In See Parsons, T. (2012). *The Social System*. p. 493.

changes of the system, depending on the unbalancing it caused on the equilibrium between social and cultural systems. In this sense, he embraced a pluralistic view of the possible origins of social changes.<sup>716</sup>

In his *Societies: Evolutionary and Comparative Perspectives* (1966), written fifteen years after *The Social System*, Parsons advanced a more developed functional view explicitly acknowledged as an evolutionary approach. In this book, Parsons stipulated that the kinds of structural change that are retained and foster complexity in the social system are those that *enhance the adaptive capacity* of the system, either because they originate a new social structure or because they better integrate other factors (systems and subsystems) through cultural diffusion.<sup>717</sup>

The social evolutionary process begins with social differentiation. A unit, a system or a subsystem divides itself into different units or systems that display both a different structure and function for the society as a whole. Parsons mentions the example of kinship structures in ancient societies. First, families were the unity of both residence and economy (agricultural production). Then, different economic units emerged, performing the function formerly assigned to the families. The differentiation process led to the specialization of units – now, kinship structures are assigned only to the familiar domain, not to the economic system anymore. But the differentiation process leads to problems of integration for the societal system (the system of society), because now the authority, the organizational and the cultural structure of both systems must be integrated into the structure of the whole system. The new system is adaptive if it promotes complexity and enhances the possibilities of the society, increasing the odds of its persistence vis-a-vis other societies, but its stabilization requires functional integration with the other systems.<sup>718</sup>

The process of functional differentiation produces a process of change that occurs in progressive cycles, which "will tend to produce a fan-like spectrum of types that vary according to their different situations, degrees of integration, and functional locations in the broader system."<sup>719</sup> The emergence of different types of structure leads to a struggle between different systems and only those that present themselves as evolutionary adapta-

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716 See Parsons, T. (2012). *The Social System*. pp. 493-494.

717 See Parsons, T. (1966). *Societies: Evolutionary and Comparative Perspectives*. Englewood Cliffs: Prentice-Hall. p. 21.

718 See Parsons, T. (1966). *Societies: Evolutionary and Comparative Perspectives*. pp. 22-23.

719 In Parsons, T. (1966). *Societies: Evolutionary and Comparative Perspectives*. p. 23.

tions and are well-integrated with other systems are stabilized. The process is a Darwinian one:

"When somewhere in a variegated population of societies there emerges a developmental 'breakthrough,' the ensuing process of innovation will, I suggest, always approximate our paradigm of evolutionary change. Such a breakthrough endows its society with a new level of adaptive capacity in some vital respect, thereby changing the terms of its competitive relations with other societies in the system."<sup>720</sup>

These are only two examples of how sociological thought has devised an etiological concept of function, also devised as a product of evolutionary change.

It is important to note, however, that sociologists have used the concept of function in a rather scrambled way, without noticing that there were in fact two different conceptions of function at stake. Durkheim was more focused on an analytical perspective, while Spencer and Parsons have used the concept both to describe how an institution satisfied a societal need and why a particular structure came to emerge and be selected as a result of performing a particular function.

My point here is not to detail the functional approach of these sociologists, but to take them as exemplars of a broader claim. *The idea of function is part of a Generalized Darwinian perspective, both applicable to biological and sociocultural entities.* If this is the case, then, we could accept that Peter Godfrey-Smith's conclusion about the interrelatedness of the analytical and etiological conceptions of functions also applies to the sociocultural domain. In this sense, functional explanation can be held as a kind of evolutionary explanation that links present to past, acknowledging path dependence effects while accepting the consequences of selection mechanisms.

The link between sociological functionalism and a Darwinian approach should now be clear. If a social element (whatever it is) performs a function when it helps to build and keep social integration in a given environment, then, *ceteris paribus*, a society lacking that element would probably be worse-off vis-a-vis a society in which that very element is present. In the long run, the extinction of the former and the survival of the latter would not be a surprise. This is the core of the evolutionary concept of function adopted by Parsons and Spencer. In Darwinian terms, one society was se-

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720 In Parsons, T. (1966). *Societies: Evolutionary and Comparative Perspectives*. p. 21.

lected rather than the other because the former was better adapted to its environment due to the fact of having had a previous competitive advantage.

If this is the case, and the idea of *function* can be in fact applicable to sociocultural entities, then we can wonder what particular function is performed by specific social systems. In this chapter, the function of law will be discussed within the multilevel systems theory approach developed in chapter 3. Why did law evolve? Why is law a ubiquitous feature in human societies? What role does law play in social evolution? These are some of the questions that will be addressed in the next section.

#### 4.2. The Function(s) of Law

The main theme developed by John Maynard Smith and Eörs Szathmáry in their 1995 *The Major Transitions in Evolution* is that increases in complexity resulted from a series of important evolutionary transitions that changed the mode of information coding and transmission.<sup>721</sup> Inspired by Smith and Szathmáry's hypothesis, Geoffrey Hodgson and Thorbjørn Knudsen put forward the claim that informational transitions also apply to social evolution. According to them, novel social structures organize individual forms of behavior (habits) and new ways of "retaining, correcting, and copying conditional response mechanisms (...) directly or indirectly relevant to the organization of the production or the distribution of means of human survival or development."<sup>722</sup>

Based on a multilevel evolutionary framework, they propose that six major evolutionary transitions have taken place in social evolution: (i) the emergence of culture; (ii) the emergence of linguistic culture; (iii) the transition from cultural groups to tribes; (iv) the creation of exosomatic mediums for storing and transmitting information (writing and other means to store information through the means of physical structures)<sup>723</sup>; (v) the emergence of judicial law; and (vi) the institutionalization of science and technology.<sup>724</sup> They also state that these might not be the only important

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721 See Smith, J. M. and Szathmáry, E. (1997). *The Major Transitions in Evolution*. pp. 3-6.

722 In Hodgson, G. M. and Knudsen, T. (2010). *Darwin's Conjecture*. p. 181.

723 See also Anastasio, T. J., Ehrenberger, K. A., Watson, P. and Zhang, W. *Individual and Collective Memory Consolidation*.

724 See Hodgson, G. M. and Knudsen, T. (2010). *Darwin's Conjecture*. p. 183.

transitions, acknowledging that their "discussion is schematic and incomplete," but "intended to illustrate and develop [their] theoretical framework."<sup>725</sup>

According to their picture, each of these transitions is accompanied by a new set of replicators and interactors.<sup>726</sup> Interactors could be understood as the entities on which selection acts, housing and serving the replicator purposes – the Darwinian populations discussed in chapter 2.<sup>727</sup> In genetic evolution, the interactor is the organism and the replicator is its genes. The transitions in social evolution produced the following interactors and replicators: pre-linguistic cultural evolution (transition), for instance, generated corporeal habits (replicator) that affected the fitness of groups (interactor). The evolution of language (transition) generated linguistic habits and customs (replicators), families and tribes being the interactors.<sup>728</sup>

Hodgson & Knudsen sustain that the evolution of customs is an important transition in social evolution because they have set the ground for the emergence of hierarchical societies – the first of which were the tribes, as distinct units from bands of hunter-gatherers. Talcott Parsons would call Hodgson & Knudsen's tribes *advanced primitive societies*, which "are characterized by stratification and by some kind of central political organization based upon relatively secure territorial boundaries."<sup>729</sup>

The role of customs in the process lies in the fact that they "store, transmit and translate information about abstract roles and interpersonal relations from generation to generation," making it possible to "form and stabilize social hierarchies."<sup>730</sup> Customs form a social habit, a group-scale repeating of social patterns, linked in a structure of interacting individuals

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725 In Hodgson, G. M. and Knudsen, T. (2010). *Darwin's Conjecture*. p. 183.

726 This distinction is based on Hull, D. L. (2001). *Science and Selection: Essays on Biological Evolution and the Philosophy of Science*. Cambridge: Cambridge University Press.

727 It is important to notice that Peter Godfrey-Smith is not committed with this perspective because he does not think that evolution needs to involve replicators in order to occur. According to him: "It is not true that evolution by natural selection requires replicators." See Godfrey-Smith, P. R. (2009). *Darwinian Populations and Natural Selection*. p. 5.

728 See Hodgson, G. M. and Knudsen, T. (2010). *Darwin's Conjecture*. pp. 183-196.

729 In Parsons, T. (1966). *Societies: Evolutionary and Comparative Perspectives*. p. 47.

730 In Hodgson, G. M. and Knudsen, T. (2010). *Darwin's Conjecture*. p. 193.

which produce collective organization based on roles and fixed ranks.<sup>731</sup> The evolutionary basis for the emergence of customs, in their reading, lies in primitive rituals such as dance and ceremony, which probably co-evolved with language as a means to reinforce group cohesion. Rituals would be the basis for supporting customs encoding tribal organization. This explanation should not be mismatched with Richerson & Boyd's thesis on the role of symbolic marking on the maintenance of cooperation.

Another transition mentioned by Hodgson & Knudsen is the emergence of exosomatic and symbolic systems, based on the storage of information in means outside individual memory, largely as a result of the invention of writing.<sup>732</sup> This transition enabled the emergence of symbolic systems in which information could be stored and transmitted with no strict dependence on the life of one single individual, as it usually happened in societies that relied on oral tradition.<sup>733</sup>

In this chapter, I will be more focused on the next transition devised by Hodgson & Knudsen: the evolution of law. To be more precise, the transition is the emergence of *organized legal systems*, which relied on written records as a medium and storage system for social rules. For them, law is "more than codified custom," because it relies on an "institutionalized judiciary," requiring a more complex division of labor.<sup>734</sup>

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731 According to Hodgson & Knudsen: "In part, interactions between individuals would be framed in terms of customs or rituals and depend on specific social positions. These customs would serve all sorts of functions, from reinforcing social hierarchies to orchestrating productive activity. Customs become a form of organizational knowledge, allowing individuals to understand many details, including the roles they must perform, but no one individual might fully understand the function of the custom itself. Customs depend on a structured group of individuals, each with habits of a particular kind, many of which triggered through procedural memory (Cohen and Bacdayan 1994). Behavioral cues offered by some trigger specific habits in others. Many of these conditional behaviors relate to social positions. Various individual habits sustain each other in an interlocking structure of reciprocating individual behaviors." In Hodgson, G. M. and Knudsen, T. (2010). *Darwin's Conjecture*. p. 195.

732 See, on this point, Anastasio, T. J., Ehrenberger, K. A., Watson, P. and Zhang, W. Individual and Collective Memory Consolidation. More specifically, Luhmann's analysis on the role of writing on social evolution demonstrates that its relevance can never be underestimated. See Luhmann, N. (2012). *Theory of Society*. pp. 150-173.

733 On this point, see Luhmann, N. (2012). *Theory of Society*. p. 173; Hodgson, G. M. and Knudsen, T. (2010). *Darwin's Conjecture*. p. 197.

734 In Hodgson, G. M. and Knudsen, T. (2010). *Darwin's Conjecture*. p. 199.



Hodgson & Knudsen see, then, a major transition from tribal custom to legal systems, not accepting then the views of distinguished scholars such as F. A. Hayek, Edmund Burke, Henry S. Maine and Friedrich C. Von Savigny, who conceive of law mainly as the product of custom. Customs emerge from the encoding of behavioral conventions that arise as Nash equilibria in coordination games occurring in the social life of tribes.<sup>735</sup> They are respected because people have innate psychological dispositions to learn the dominant social rules within the tribe through the imitation of the most common behaviors and other forms of social transmission. Again, this is an explanation largely compatible with the gene-culture co-evolutionary account.<sup>736</sup>

Nonetheless, complex legal systems are not reducible to systems whose enforceability depends on dispositions to conform and punish those who break the law. As a matter of fact, legal systems are specialized systems that take the right to punish out of the hands of most individuals, turning personal vengeance into a criminal offense. If in hunter-gatherer bands and tribes vengeance could be admitted as a means to impose social norms over free-riders, the legal system "removes the right to punish from unauthorized individuals," making "punishment a legitimized monopoly of the judiciary."<sup>737</sup>

Hodgson & Knudsen see this feature of modern judicial systems as a paradox because legal systems depend on suppressing the instincts of punishing free-riders, transferring the right to punish to legitimately authorized institutions and turning personal vendetta into a criminal offense.<sup>738</sup>

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735 See Hodgson, G. M. and Knudsen, T. (2010). *Darwin's Conjecture*. p. 200.

736 See Richerson, P. J. and Boyd, R. (2008). Not by Genes Alone: how Culture Transformed Human Evolution; McElreath, R., Boyd, R. and Richerson, P. J. (2003). Shared Norms and the Evolution of Ethnic Markers. *Current Anthropology*, 44(1), 122-130; Blute, M. (1987). Biologists on Sociocultural Evolution: A Critical Analysis. *Sociological Theory*, 5(2), 185-193; Bell, A. V. and Richerson, P. J. (2009). Culture rather than Genes Provides Greater Scope for the Evolution of Large-Scale Human Prosociality. *Proceedings of the National Academy of Science*, 106(42), 17671-17674.

737 See Hodgson, G. M. and Knudsen, T. (2010). *Darwin's Conjecture*. p. 201.

738 In their words: "A problem concerning the evolution of law is to explain how culture could suppress the emotions and behaviors triggered by these instincts to the extent that the punishment of rule breakers is regulated by the institutionalized enforcement of abstract legal principles rather than freeloan outpourings of visceral emotions. Specific cultural mechanisms of control must evolve to contain such punishment instincts and also bestow some survival value for the group." In Hodgson, G. M. and Knudsen, T. (2010). *Darwin's Conjecture*. p. 201.

Nonetheless, this feature of complex societies in which legal systems are fully operative does not need to be understood as a paradox. As already seen (chapter 2), cultural evolution sometimes produces behaviors that counter our innate dispositions and, as a consequence, we are the result of conflicting inclinations,<sup>739</sup> resulting both from our inborn tendencies and our cultural background. Besides that, the well-functioning of legal institutions can dissipate the instinct to *personally* punish criminals, diffusing the sense that a third-party (the government) is efficiently taking care of this task.

An important issue needs to be explored in Hodgson & Knudsen's characterization of law as an evolutionary social transition. Their description of law as a social structure is too demanding. According to them, law means "an overarching system of rule enforcement that guides the operation of other institutions or systems or rules and interacts with custom."<sup>740</sup> After the emergence of law, states and the judiciary act as higher-level interactors of the social system, containing other nested organizations which replicate on multiple levels, competing for resources – including power and decisions of the judicial courts.

If we accept this concept of law, then societies did not have legal systems for the most part of human history – maybe, with the exception of Roman Law and 16th century England.<sup>741</sup> According to their definition, only societies distinguished by (i) full-blown states; (ii) an independent judicial system composed of courts; and (iii) an overarching system of rule enforcement that guides the operation of other institutions or systems can be said to possess law. If this is true, then sophisticated societies such as the Ancient Egypt, Persia, Greece, China and maybe even Rome could not be said to possess law as an institution. Talking about Ancient Greek law, or Chinese *law* would be wrong; instead, we should say Ancient Greek or Chinese *customs*.

The mistake committed in Hodgson & Knudsen's proposal relates to two main points. First, they overcharged their concept of law with many features that only modern legal systems are endowed with. This misunderstanding stems from not contrasting two senses in which law can be comprehended: as a *structure* and as a *social system*. The second mistake origi-

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739 The anthropologist Christopher Boehm would talk of an ambivalent nature. See Boehm, C. (1989). *Ambivalence and Compromise in Human Nature*.

740 In Hodgson, G. M. and Knudsen, T. (2010). *Darwin's Conjecture*. p. 205.

741 See Thornhill, C. (2011). *A Sociology of Constitutions*. New York: Cambridge University Press. p. 144.

nates from a mischaracterization of two proposed social transitions due to a lack of understanding of the sociological issues at stake. The third transition, which supports the transition from egalitarian bands to hierarchical tribes, is not the evolution of custom, but the evolution of *law as a social structure*; the fourth transition, on its turn, is the evolution of *functional differentiation*, being the evolution of *law as a social system* just one of the social systems that have emerged in the process.

Law can be understood in at least two senses: as a *social structure* and as a *social system*. In their description, Hodgson and Knudsen focused solely on the second aspect of law, which is largely defined as an independent judicial system composed of courts and integrating fully-developed states. Nonetheless, law is more than a functional system of decision in which norms are selected; it is also the normative architecture on which the whole societal system operates and on which all other social systems rely in order to operate according to their own generalized media.<sup>742</sup>

My claim is that law as a social structure has emerged much before law as a functionally differentiated social system, structuring the normative architecture of archaic societies within a system of norms encoding not only individual duties and the punishment for offenses, but also social hierarchy and the roles within social organization.<sup>743</sup> In this sense, I attribute to law the role Hodgson & Knudsen assign to custom in archaic societies.

This is not a trivial disagreement. In this chapter, I intend to discuss precisely the functions of law as a societal adaptation providing evolutionary advantages at the level of human societies. As such, law provided human tribes with the societal means to structure social organization in a way that hunter-gatherer bands could not, facilitating the sustenance of more complex forms of social arrangements. Law, not custom, was the societal adaptation that enabled the social transition from hunter-gatherer bands to ancient tribal forms of organization and the first hierarchical societies.

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742 As Martin Albrow, the editor of Luhmann's *A Sociological Theory of Law*, states: "Law serves as a structure for all systems in society because it provides for over-all congruency of expectations of behaviour. Existing as it does in continual interaction with its environment, the all-embracing system, namely society, it is therefore in continual evolution." In Luhmann, N. (2004). *Law as a Social System*. p. xv.

743 In Martin Albrow's words: "(...) law has always existed in human society. What differs over evolutionary time is the extent to which legal structures are differentiated from the rest of society. Elements like legal codes, courts and judiciary are late developments of law but not of the essence." In Luhmann, N. (2004). *Law as a Social System*. p. xx.

Custom cannot fulfill this function because it can be reduced to the cultural domain, not depending on any other societal structure. This conclusion can be derived even from the concept of custom adopted by the authors. Although they define "customs as dispositions in cohesive groups to energize patterns of behavior and interaction, involving conditional and sequential responses to behavioral cues that are partly dependent on social positions in the group,"<sup>744</sup> they acknowledge that rituals and ceremonies are "examples of customs," and that "the set of customs in a group defines its culture."<sup>745</sup> They also consider their "definition of culture [...] compatible with recent work in cultural anthropology (Boyd and Richerson 1985; Durkham 1991)." As discussed, Richerson & Boyd's concept of culture is based on the transmission of cultural traits by individuals, and not by organizations. Culture, to them, is a property possessed by individuals and, as such, it is hard to understand in what sense custom could qualify as a feature possessed by the social organization, as Hodgson & Knudsen propose.

How has, then, law paved the way for the evolution of hierarchical societies? In order to investigate this point, it is crucial to state what *function(s)* law performs in society. As a starting point, I will refer to Niklas Luhmann's discussion on the subject. According to his approach, the function of law is to stabilize expectations despite disappointments – or, in his own words, law concerns "the stabilization of normative expectations."<sup>746</sup>

What does this mean? I will discuss the meaning of the function assigned by Luhmann to law in the first subsection, designated "Law as structure" exactly because, as I see it, this is what Luhmann means by stating that law stabilizes normative expectations. Based on Turner's distinction between macro-dynamics and micro-dynamics, however, I claim that Luhmann's analysis, although insightful, is incomplete because he disregards the function of law at the micro-dynamic level – which, I claim, is to promote cooperation at the individual level, maintaining the stable de-Darwinization of the societal lower-level. This will be the subject discussed in the second subsection.

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744 In Hodgson, G. M. and Knudsen, T. (2010). *Darwin's Conjecture*. p. 182.

745 In Hodgson, G. M. and Knudsen, T. (2010). *Darwin's Conjecture*. p. 182.

746 In Luhmann, N. (2004). *Law as a Social System*. p. 148.

#### 4.2.1. Macro-dynamic (and Meso-dynamic?) level: Law as Structure of Society

The concept of social structure is one of those sociological ideas where lack of agreement is the rule. Maybe, as Jonathan Turner speculates, the only points on which most sociologists would agree would be "that the concept of social structure denotes persistent regularities in patterns of social relationship"<sup>747</sup> and that social structure is one "underlying dimension" in social relations.<sup>748</sup>

Beyond these vague general statements, consensus is almost impossible – and attempting to settle this issue is not my purpose here. Rather, my aim is to at least state in what sense I am referring to "structure" as a concept, in order to precisely specify my claim that law is a societal structure.

Again, my starting point is Luhmann's sociology. He rejects the structuralist approach toward the concept of social structure because structuralists do not refer to the empirical reality, but only to an analytical model of it when they apply this concept.<sup>749</sup> Instead, he proposes that structures are references in empirical reality that affect the way communication is processed within a social system.<sup>750</sup> The primary function of a social structure is to transform "unstructured complexity into structured complexity,"<sup>751</sup> by means of making categorical distinctions that build order where before only chaos existed. By making new distinctions, structures constrain the possibilities of a social system. "Thus structure, whatever else it may be, consists in how permissible relations are constrained within the system."<sup>752</sup> As discussed before, the meaning of *constraint*, here, is both positive and negative. Constraints canalize complexity into specialized fields of action, thus limiting their possibilities but also enabling them to further their own specialized alternatives, made possible by the very constraint.<sup>753</sup> Struc-

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747 In Turner, J. H. (1978). Review: "Approaches to the Study of Social Structure," Edited by Peter M. Blay. *Contemporary Sociology*, 7(1), 93-94.

748 In Turner, J. H. (1978). Review: "Approaches to the Study of Social Structure," Edited by Peter M. Blay. p. 94.

749 See Luhmann, N. (1995a). Social Systems. p. 278.

750 See Luhmann, N. (1995a). Social Systems. p. 282.

751 In Luhmann, N. (1995a). Social Systems. p. 282.

752 In Luhmann, N. (1995a). Social Systems. p. 283.

753 According to Luhmann: "Translated into the terminology of the theory of autopoietic systems (which, however, uses the concept of structure quite differently), this means that only by a structuring that constrains can a system acquire enough "internal guidance" to make self-reproduction possible. From every element, specific other (not just any other) elements must be accessible, and this

tures are stable, in Luhmann's account, because they are selected over time, reinforcing the constraining effect of further selections. Nonetheless, there is no assurance that they will remain stable forever, since the environment changes and, as such, structures must adapt accordingly.<sup>754</sup>

Most of Luhmann's analysis is focused on the selection of structures associated to social systems. Law is one social structure, but there are also other relevant social structures, such as the generalized media of communication of love, truth and power, and the scheme of societal systemic differentiation. However, law is a different structure, because it is associated to the societal system as such – the overarching social system that encompasses all others, thus constraining the communication possibilities within all other social systems.<sup>755</sup> Society is a system of communications, according to Luhmann – not an association composed by human beings, which is a conception expressly criticized by him as "the old European tradition of social and legal philosophy."<sup>756</sup>

The particularity of society in relation to the other social systems concerns two features. First, it specifies the structural framework on which all other social systems operate. "Society is that social system whose structure regulates the ultimate and basic reductions to which other social systems can be attached."<sup>757</sup> Second, it sets the boundaries that enclose itself as a structured system, therefore institutionalizing a difference between system and environment.<sup>758</sup> The societal system depends on law for both tasks, because the particular normative structure of law is specifically dedicated to

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must be so due to specific qualities of the elements that stem from their own accessibility. To this extent structure as the selection of constrained possibilities is presupposed in the constitution of qualified elements and thus in autopoiesis." In Luhmann, N. (1995a). *Social Systems*. p. 283.

754 See Luhmann, N. (1995a). *Social Systems*. p. 290.

755 See Luhmann, N. (2013). *Theory of Society*. pp. 295-296. As Parsons acknowledged: "The second salient characteristic of law is that it is nonspecific with respect to functional content at lower levels. Functional content, understood in the usual sociological senses, refers to such categories as economic, political, and a variety of others. There is a law of business and of labor and the relations of business to labor. There is a law of the family, of personal relationships, and a variety of other subjects indeed, any social relationship can be regulated by law, and I think every category of social relationship with which sociologists are concerned is found to be regulated by law in some society somewhere." In Parsons, T. (1980). *The Law and Social Control*. In Evan (Ed.), *The Sociology of Law* (pp. 60-68). New York: The Free Press. p. 61.

756 In Luhmann, N. (2014). *A Sociological Theory of Law*. p. 104.

757 In Luhmann, N. (2014). *A Sociological Theory of Law*. p. 104.

758 See Luhmann, N. (2014). *A Sociological Theory of Law*. p. 104.

defining the "boundaries and selection types of the societal system,"<sup>759</sup> through the performing of its function of *stabilizing normative expectations*.

Parsons assigned four functions to law.<sup>760</sup> Its primary function is integrative. Law "serves to mitigate potential elements of conflict and to oil the machinery of social intercourse."<sup>761</sup> Under the AGIL scheme, the function of law is to provide integration to social systems – a function similar, at the social level, to the function culture performs at the lower level, integrating individuals (alter and ego) within a single cultural symbolic background. Parsons assumes that "a system of social relations can indeed be regarded as stable and integrated only if the corresponding actors have recourse to a commonly binding cultural tradition."<sup>762</sup> In the same vein, law also performs an integrative function, both at the meso-dynamic and at the micro-dynamic sociological levels because it structures interaction in those domains, integrating the sociological units (individuals and organizations) through a unified legal system. In this sense, he asserts that "only by adherence to a system of rules that systems of social interaction can function without breaking down into overt or chronic covert conflict."<sup>763</sup>

In order to provide such integration, however, Parsons considered that law must solve four other problems – legitimation, interpretation, enforceability, and jurisdiction.<sup>764</sup> Problems of interpretation, enforceability and jurisdiction depend on decisions within the very legal system, concerning how the meaning of particular rules should be selected (interpretation), what the consequences of disregarding or observing rules are (enforceability), and what authorities are given the power to impose a given set of norms (jurisdiction).<sup>765</sup>

Problems of legitimation, however, are foundational to legal systems. They concern the very reasons why individuals should conform to the particular rules of the legal system. This is a problem solved by Parsons within his theory of culture: the constitutive norms of a particular legal system

759 See Luhmann, N. (2014). *A Sociological Theory of Law*. p. 105.

760 See Parsons, T. (1980). *The Law and Social Control*; Treviño, A. J. (2008). *Talcott Parsons on Law and the Legal System*. pp. 291-304.

761 In Parsons, T. (1980). *The Law and Social Control*. p. 61.

762 In Schmid, M. (1993). *The Concept of Culture and Its Place within a Theory of Social Action: A Critique of Talcott Parsons's Theory of Culture*. In Münch and Smelser (Eds.), *Theory of Culture* (pp. 88-120). Berkeley: University of California Press. p. 100.

763 In Parsons, T. (1980). *The Law and Social Control*. p. 61.

764 See Parsons, T. (1980). *The Law and Social Control*. p. 62.

765 See Parsons, T. (1980). *The Law and Social Control*. p. 62.

should be observed because individuals share the same values packed within a cultural symbolic system. Commenting on Parsons's theory that the function of law is to provide social integration backed on a shared moral system, Javier Trevino affirms that even in contemporary contexts "[legal] enforcement always raises a question of whether the organs of government are legitimately acting in a constitutional – and back of that a moral – sense."<sup>766</sup>

The assumption of cultural integration is problematic, however, especially in complex societies marked by intensive pluralism.<sup>767</sup> How can legal institutions be legitimized and perform their function of social integration in societies where there is *no likely consensus* about the cultural values that ground social life? As Rawls poses the issue, "the political culture of a democratic society is always marked by a diversity of opposing and irreconcilable religious, philosophical, and moral doctrines."<sup>768</sup>

This question will be explored in the last chapter. For now, I only want to refer to the issue of legal legitimation within Talcott Parsons' theory because it is one of the fundamental reasons why Luhmann rejects his analysis. When examining the function of law, Luhmann stresses the need of isolating how law differs from other structures in its peculiar characteristics. What is the function *only* law – and not other structures and social systems – specifically performs? Law is not selected because it provides social control or integration,<sup>769</sup> as in Parsons' approach, but for providing *congruently generalized normative behavioral expectations*.<sup>770</sup> In order to understand Luhmann's approach to the issue of the function of law, it is important to develop further what he means by this highly abstract definition.

As an abstract and pervasive structure, law is not defined by its content, but by its function: law stabilizes normative expectations for society.<sup>771</sup> The role of law as a *structure* is intrinsically related to its role of *stabilizing* normative expectations. In Luhmann's conceptual framework, there can be two kinds of expectations concerning social action, defined by the specified attitude in case of disappointment.<sup>772</sup> Cognitive expectations concern

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766 In Treviño, A. J. (2008). Talcott Parsons on Law and the Legal System. p. 150.

767 See Rawls, J. (2005). Political Liberalism; Archer, M. S. (1985). The Myth of Cultural Integration. *The British Journal of Sociology*, 36(3), 333-353.

768 In Rawls, J. (2005). Political Liberalism. p. 3.

769 Luhmann, N. (2004). Law as a Social System. p. 143.

770 Luhmann, N. (2014). A Sociological Theory of Law. p. 77.

771 See King, M. and Thornhill, C. (2006). Niklas Luhmann's Theory of Politics and Law. p. 40.

772 Luhmann, N. (2014). A Sociological Theory of Law. pp. 32-33.



the knowledge of facts and are revised when there is disappointment. When a scientist is developing a theory and he tests his hypothesis, for instance, he will probably review his conjectures if the proposed experiments do not provide the expected empirical results.

Normative expectations, on the other side, are maintained even in case of disappointment. We do not change our belief that killing someone for no reason is wrong just because someone has committed an unjustified murder, nor do we think that stealing has become tolerable just because someone stole an object and has not been subjected to a legal sanction. In this sense, normative expectations are stable. Their validity and expected enforceability remain unchanged independently of their actual fulfillment.<sup>773</sup> "Norms are counterfactually stabilized behavioral expectations."<sup>774</sup>

Law is related to normative expectations, in this sense. But this is not enough to understand law as a societal structure, because there are many kinds of normative expectations that do not constitute societal structures, such as purely moral prescriptions or etiquette rules.<sup>775</sup> Law is also a *congruently generalized* body of normative expectations. By this, Luhmann means that Law is institutionalized: its expectations "are based on the presupposed expectations of expectation on the part of a third party."<sup>776</sup>

It is this feature that takes law out of the lower level of individual interactions to the macro-structural level - as part of a society's phenotype.<sup>777</sup> Law is not simply a cultural trait (a "meme") transmitted individually, because it is assumed as a valid feature of society by all individuals and, as such, coordinates social organization. All members of a society, and in more complex societies, *all social systems*, formulate their expectations and guide their social actions based on *presupposed expectations* of the other members *and on the expectations of its own society, conceived of as a third party*. When law is institutionalized, individuals organize their affairs presuming the opinion of others, "unknown, anonymous third parties that" are

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773 Luhmann, N. (2014). A Sociological Theory of Law. p. 33.

774 In Luhmann, N. (2014). A Sociological Theory of Law. p. 33.

775 See Hart, H. L. (1994). The Concept of Law. p. 86.

776 In Luhmann, N. (2014). A Sociological Theory of Law. p. 49.

777 See Jordan, F. M., van Schaik, C. P., François, P., Gintis, H., Haun, D. B. M., Hruschka, D. J., Janssen, M. A., Kitts, J. A., Lehmann, L., Mathew, S., Richerson, P. J., Turchin, P. and Wiessner, P. (2013). Cultural Evolution of the Structure of Human Groups. In Richerson and Christiansen (Eds.), *Cultural Evolution: Society, Technology, Language, and Religion*. Cambridge: The MIT Press. pp. 104-106.

"(...) represented by the institution."<sup>778</sup> There is no assumed consensus on the content of law, but only expectations about the assumptions others make simultaneously during communication.<sup>779</sup> Law stabilizes itself because, over time, these assumptions accumulate (information redundancy) and the need for congruence, past experience and quite general and temporary agreements stabilize normative expectations.

This structure builds on the psychological capacity of the collective intentionality (Tomasello)<sup>780</sup>, which is at the root of a reasoning based on the shared assumption of an institutional reality. Collective intentionality is the psychological ability to assign intentions to a collective beyond its constitutive members. According to John Searle, the existence of institutions as social facts depends on collective intentionality because "institutional structures require collective recognition by the participants in the institution in order to function."<sup>781</sup>

His notion of recognition is not to be understood in terms of Parsons' assumed *consensus*, a cultural agreement on all the foundational values of social life. Searle points out that the notion of 'collective recognition' does not imply some degree of approval: "one can recognize and act within institutions even in cases where one thinks the institution is a bad thing."<sup>782</sup> For him, the collective recognition needed to back the functioning of institutions is just the assumption that every participant accepts the existence of the institution and knows that all others also accepts it: "If you have collective recognition of something as money, that collective recognition can be constituted by the fact that each person recognizes money and there is mutual knowledge among the participants that they all recognize money."<sup>783</sup>

Searle's perspective is closer to Luhmann's approach on the issue of institutionalization. According to the German sociologist, when an institution exists, expectations are formed based on the *presupposed expectations* of the other members *and on the expectations of its own society, conceived of as a third party*. The third party is a presumed one, existing as a sociological background assumption – but who could say that it does not exist, if it is assumed in everybody?<sup>784</sup> Being socially presumed, the institution becomes part of the social experience, enabling new possibilities – the construction

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778 In Luhmann, N. (2014). A Sociological Theory of Law. p. 50.

779 See Luhmann, N. (2014). A Sociological Theory of Law. p. 51.

780 Tomasello, M. (2014). A Natural History of Human Thinking.

781 In Searle, J. R. (1995). The Construction of Social Reality. p. 57.

782 In Searle, J. R. (1995). The Construction of Social Reality. p. 57.

783 In Searle, J. R. (1995). The Construction of Social Reality. p. 58.

784 In Luhmann, N. (2014). A Sociological Theory of Law. p. 50.

of novel institutional facts backed on institutional reality. This is the role of what Searle calls *status function declarations*. A *status function* is defined as a function of an entity (an object, person or other), which can be performed because the community assigns a particular *status* to that object in particular contexts.<sup>785</sup> This is what happens when a community defines its boundaries through assigning special statuses to physical cues such as rivers, trees or stones. The object (tree, stone, etc.) is assigned the special status function of boundary in a specific context (in the case, community agreement, but it could be due to legal determination).

Searle's approach on the theme shows how institutions can produce both regulative and constitutive rules. While regulative rules are standing directives that aim to produce a desired behavior, constitutive rules are *declarations* that produce a new reality. Searle invokes the example of a rule defining the successor of a king – curiously, the same example mentioned by Hart in his *Concept of Law*. When a rule states that anyone that satisfies condition X (the oldest surviving son, for instance) will be the new king, the rule produces a new *institutional fact*, making the person who satisfies the specified conditions the new king.<sup>786</sup> The same point could be made toward the creation of a corporation according to the legal rules and even the definition of government roles and powers in a given society.

This apparently nebulous foundation for law can be firmer than it appears at first sight. In order to understand why, we must return to Hodgson & Knudsen's discussion about social transitions. As I argued, law is a transition that fostered social evolution, but now I can provide some arguments to back my point.

According to Hodgson & Knudsen, the transition from cultural groups to tribes occurred because human communities have evolved a new form of social transmission of information – customs. In their perspective, customs are different than culture because they encode information about the social structure – ranks, social positions, roles and hierarchy. Nonetheless, I showed that their very discussion on the subject is misleading because they define custom by referring to a concept of culture.

From a certain point of view, they are right: the transition from cultural groups to tribes occurred because human societies have developed a new adaptation that encoded "hierarchy, social positions, rituals, and a division of labor."<sup>787</sup> But *this adaptation is law*, understood as a societal structure,

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785 See Searle, J. R. (1995). The Construction of Social Reality. p. 94.

786 See Searle, J. R. (1995). The Construction of Social Reality. p. 97.

787 See Hodgson, G. M. and Knudsen, T. (2010). Darwin's Conjecture. p. 195.

*not custom*.<sup>788</sup> Law encodes information concerning societal structures through *norms*, therefore stabilizing new forms of social organization and enabling further evolution. From a memetic perspective, norms are a kind of cultural variant; but they are special precisely because they are stable, protected against change either through contra-factual expectations (their validity is maintained intact even if they are not observed in a specific situation) or via institutional enforcement, through sanctions or other forms of coercion.<sup>789</sup>

In this sense, law was essential in the evolutionary transition from human societies as MLS1-evolved marginal Darwinian populations to MLS2-evolved paradigmatic cases of Darwinian populations. MLS1 evolved cultural groups also have norms, which are needed to solve problems of free-riding through symbolic marking and moralistic punishment. These groups can rely on cultural consensus as a sound basis of cooperation, but neither the symbols on which they carry their group-identity nor the norms on which they lay the foundations to punish free-riders carry information about group organization. These social norms carry only information about who is an in-group or an outsider (symbolic marking), and concrete details about improper behaviors that deserve punishment, but not about social roles, hierarchy or a clear division of labor. This is the kind of archaic society the anthropologist Christopher Boehm talks about, and which achieved the improbable evolutionary accomplishment of reverting hierarchy and establishing egalitarianism in the human lineage.<sup>790</sup> These societies probably were ubiquitous by 100,000 years ago and were unified by common "moral" (cultural) blueprints supported by a psychological capacity of collective intentionality (Tomasello & Boehm), ready to punish usurpers, free-riders and outsiders, and follow social norms, but with almost no division of labor, hierarchy and distinction of roles.

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788 Notice that the argument is based on a distinction between law and custom. Even though custom can account for much of law's content (customary law), custom encodes only habits, lacking the normative structure embodied in law. Only when customs are observed normatively, not as a mere habit, they can encode societal structure in the form of customary law.

789 See Luhmann, N. (2014). *A Sociological Theory of Law*. p. 78.

790 See Boehm, C., Barclay, H. B., Dentan, R. K., Dupre, M.-C., Hill, J. D., Kent, S., Knauff, B. M., Otterbein, K. F. and Rayner, S. (1993). *Egalitarian Behavior and Reverse Dominance Hierarchy* [and Comments and Reply].

These are the origins of law: not as a societal structure, but as a conventional one,<sup>791</sup> in the sense that it evolved in a bottom-up process involving social norms backed by moralistic punishment,<sup>792</sup> cultural transmission and a slow group-selection process in which, in due time, the coevolution between more complex societies marked by novel forms of organization (social roles, hierarchy and division of labor) and social norms have produced a new form of societal structure – law as a normative system encoding societal structure.

The coevolution between law and society – law encoding new forms of social organization, and societal evolution providing new social units –, over time, has produced a new sociological stratum, the *mesodynamic level*, constituted by organizations nested within society. The first forms of meso-level units – segmentary differentiation between families and small non-kin groups<sup>793</sup> – could be organized within the dynamics of an assumed cultural consensus of the Pleistocene archaic MLS1 evolved societies with no need of specific codification within law.

In this sense, the lack of functional or stratified differentiation between organizational units conflates the macro and meso-dynamic levels in archaic societies. In more complex forms of society, where subsystems arise and new organizational units emerge and relate to each other, social norms stabilize the relational patterns and crystalize them within the societal legal structure, which is assumed as a normative background to all social action.

This question will be better explored on section 4.3, in which I will detail the discussions concerning the function of law in archaic and pre-modern high societies, and how it worked as an adaptation that fostered societal evolution in each case. For now, I want to highlight the major issue at stake in this section: the fact that law is a structure at the societal (macro-dynamic) level, whose function is to normatively codify expectations, thus

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791 On the conventional evolution of norms as the product of equilibria in game-theoretic situations, see Young, H. P. (1998). Social Norms and Economic Welfare. *European Economic Review*, 42, 821–830; Posner, R. A. (1997). Social Norms and the Law: An Economic Approach. *The American Economic Review*, 87(2), 365–369; Posner, E. A. (2000). Law and Social Norms: The Case of Tax Compliance. *Virginia Law Review*, 86(8), 1781–1819.

792 Gardner, A. and West, S. A. Cooperation and Punishment, Especially in Humans. *The American Naturalist*, 164, 753–764; Guthrie, C., Rachlinski, J. J. and Wistrich, A. J. (2002). Judging by heuristic: cognitive illusions in judicial decision making. *Judicature*, 86(1), 44–50; Fehr, E. and Fischbacher, U. (2004). Third-Party Punishment and Social Norms.

793 See Luhmann, N. (2014). A Sociological Theory of Law. p. 110.

stabilizing assumptions about society, others and the expected behavior to be adopted.

As a result, law can be seen as a societal adaptation because it provides many mechanisms of producing integration at societal level, a major feature of full-blown Darwinian individuals (see chapter 3). The societal level, here, is not considered the group of individuals, but the definition of society as a meaning-system, the full-range of communications based on the same assumptions. As law codifies a major part of the societal structure, providing normative standards on which forms of communication (cultural variants or behaviors) can be accepted or not, it plays a major part in defining the very boundaries of the societal system and, as such, its fundamental identity.<sup>794</sup>

In order to conclude this subsection, I would like to add just one more point. Luhmann advances an interesting association between law and biology by saying that law is the immune system of society because it learns from conflicts and produces a response to them: rules that will process future conflicts.<sup>795</sup> It might be one way to see the function of law, but I think that this point stresses the role of the legal system as a social system, not as a societal structure. When we look at law as a *structure* and acknowledge its role in codifying societal anatomy and in enabling/constraining the possibilities for its further evolution, while defining the external and internal boundaries between different social units and social systems, comparing law to a societal DNA would be far more appropriate.

#### 4.2.2. Micro-dynamic level: Law Promotes Cooperation

Now I want to stress another function performed by law in the process of the emergence of human societies as full-blown evolutionary individuals. Law enforces the de-Darwinization of the micro-dynamic domain by strengthening cooperation through the compliance with social rules *and* by specifying authority to apply sanctions.

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794 As Luhmann says: "If our reflections about the context of system boundaries and normative structural selection hold true, then we might well assume that, during the course of social development, an increasing need for manifold and clear system boundaries puts the legal mechanism under special constraints." In Luhmann, N. (2014). *A Sociological Theory of Law*. p. 98.

795 See Luhmann, N. (2004). *Law as a Social System*. pp. 48-49.

In order to understand this point, let us return to an issue discussed by Peter-Godfrey Smith. According to him, the evolution of a new Darwinian Individual is understood as a part/whole relationship, in which the new "whole" at the level  $n$  is composed of a collection of entities at the level  $n-1$ . The paradigmatic case in biology is that of a multicellular organism like us, humans: our organism is a "whole" composed of many "parts," the cells.<sup>796</sup> As both levels are Darwinian individuals in their own right, both of them vary, reproduce and inherit their characteristics through reproduction. But the reproduction of lower-level entities poses a problem to the collective being: *subversion*. If a cell divides faster than others and starts to pass its own features to its offspring by reproducing, it probably will do no good for the organism.

From a strictly gene-centered point of view, the cell has a strong "incentive" to reproduce itself because, by doing so, it will produce more offspring than by limiting its own replication. From the collective point of view, this is a huge problem to be dealt with: if the reproduction of its "parts" is not constrained, the very viability of the collective entity is endangered because its parts will disrupt its internal structure.

I already discussed this problem in chapter 2 when the problem of kin selection was considered. Why would a worker bee limit its own reproduction to the benefit of the beehive? The answer, at that time, was the very structure of kin selection. Since the worker honeybee shares 75% of its genes with its own sisters, *inclusive fitness* explains its altruism in not reproducing and leaving the reproductive function for the queen. The same happens in the case of our cells: since they are a clone of each other, altruism is to be expected and, as a result, cells limit their own reproduction.

According to Godfrey-Smith, the issue at stake, here, is the need of de-Darwinizing lower-level evolutionary elements of a collective entity, limiting the action of evolution at the lower levels. He proposes two feasible mechanisms that could provide this: the use of Bottlenecks (B) and the differentiation of Germ Lines (G).<sup>797</sup>

While germ lines de-Darwinize the lower-level population by limiting heritability to cells at the germ line, bottlenecks guarantee uniformity in the offspring cells by rebooting individual development at every generation out of one single cell. By doing this, bottlenecks grant that all cells of the organism are clones of the preserved single-celled stage, limiting varia-

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796 See Godfrey-Smith, P. R. (2009). *Darwinian Populations and Natural Selection*. p. 93.

797 See section 3.1.2 for further details on this point.

tion (V) and decreasing the force of evolutionary competition at cellular level.

The point to be highlighted in bottlenecks is not the mechanism through which it acts, but the resulting effects of *limiting variation at the lower evolutionary level*. The bottleneck that reduces the whole generation to a single cell is just a mechanism that produces this effect, therefore granting that all cells resulting from the original cell will be clones.

The function of law at the micro-dynamic level is precisely to act as a sociocultural bottleneck in sociocultural evolution by *regulating* the admitted scope of behavioral and cultural *variation* through compliance to social norms. As a result, it provides the de-Darwinization needed in order to support the transition to human societies as MLS2 evolved individuals in their own right.

Law is needed for this task because it solves a problem already discussed in chapter 2. As considered in that moment, the evolution of cooperation presupposes a way of coping with free riding. Kin selection does this by structuring altruism through genetic channels: an individual cooperates with the other because altruistic behavior enhances the odds of transmitting their own genes to future generations as a result of inclusive fitness. As a result, free riding is controlled, insofar as inclusive fitness is greater than the feasible fitness of any individual acting alone. A free-rider pursuing his own interests instead of the group's objectives could do no better than all the other individuals acting altruistically and, as a result, would not be selected. This mechanism can explain altruism in groups composed by genetically close individuals, such as honey bees, ants and termites.

Reciprocal altruism, on the other hand, is an important transition in the evolution of cooperation because it frees altruism from genetics: individuals cooperate because they can be rewarded in future interactions and they control free riding by monitoring behaviors and punishing non-reciprocators (dyadic punishment). Although there is no need of genetic relatedness, direct reciprocity depends on individual memory's capacity to register past interactions and, more than that, is subject to the problem of the decreasing marginal cost of punishment in larger groups. In bigger groups, the odds are lower for one free-rider encountering one altruistic individual with whom they have had a past experience and, consequently, opportunists can find favorable circumstances to exploit.

There is a third possibility: indirect reciprocity. Direct reciprocity works in dyads, where individuals monitor their own past interactions with other members of their society. Indirect reciprocity begins like direct reciprocity in this respect, but each agent assigns a reputation to the other as altruist



or free-rider in the event of an interaction, communicating this to the other members of the group. As a result, a member of the group can be aware of those who are a free-riders and punish them even if the punisher had not been harmed directly by that particular individual.

The evolution of indirect reciprocity as a mechanism to sustain cooperation in the human lineage can be understood as a product of gene-culture coevolution.<sup>798</sup> With the growth of group size, the pressure to deal with free-riders became a real issue due to the already diminishing marginal cost of punishment in larger groups. Increase in our cultural capacities, including the evolution of language,<sup>799</sup> as a result of gene-culture coevolution<sup>800</sup> processes, provided the means to assess and communicate reputational information within the group, institutionalizing a stable cooperative network.<sup>801</sup> Also, psychological biases enhance the accuracy of reputational information. Conformist bias, for instance, consolidates information about a specific individual within the group due to the reinforcing effect of receiving the same information from different sources. The assessment of the information is also affected by the prestige bias, since more prestigious agents can be held as more reputable than others.<sup>802</sup> These biases underlie the social psychology needed for keeping cooperation within the group while being suspicious of outsiders, as Natalie Henrich and Joseph Henrich claim: "When individuals encounter someone they don't know and have never heard of (...), what should they do? Theoretical work on indirect reciprocity shows that they should be SUSPICIOUS: that they should defect and see if the other person cooperates."<sup>803</sup>

Combined, the psychological predisposition to punish free-riders, the ability to imitate and its resulting cultural accumulation, the conditions for maintaining both stable cultural groups and cultural variation between groups were set. Competition between groups and the resulting *cultural group selection* produced enduring effects in our innate psychology, includ-

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798 Cronk, L. and Leech, B. L. (2013). *Meeting at Grand Central: Understanding the Social and Evolutionary Roots of Cooperation*. Princeton: Princeton University Press. p. 92.

799 See Dunbar, R. (1998). Grooming, Gossip, and the Evolution of Language.

800 See chapter 2.2.3 for further detail.

801 See Henrich, N. and Henrich, J. (2007). *Why Humans Cooperate: a Cultural and Evolutionary Explanation*. Oxford: Oxford University Press. p. 61.

802 See Henrich, N. and Henrich, J. (2007). *Why Humans Cooperate: a Cultural and Evolutionary Explanation*. p. 62.

803 In Henrich, N. and Henrich, J. (2007). *Why Humans Cooperate: a Cultural and Evolutionary Explanation*. p. 63.

ing a cognitive disposition to cope with social norms, defined as "normative standards of behavior that are enforced by informal social sanctions."<sup>804</sup> The anthropologists Natalie and Joseph Henrich define social norms by referring to three characteristics: (i) social norms describe the proper behavior or proscribe undesirable conduct; (ii) they are shared by a significant proportion of the population; and (iii) failure to conform tends to attract anger from other individuals, who may punish the violator incurring in personal cost.<sup>805</sup>

Through social norms, cooperation and social life gain in complexity and abstractness. In direct reciprocity, individuals are punished because they do not reciprocate in a concrete relationship. Free-riders do not return a *specific* favor to the *particular* donor of the benefit. Indirect reciprocity opens the doors for a more abstract approach, insofar as a free-rider is punished for not having a particular *reputation*, not because of a precise and specifiable misdeed. The evolution of social norms expands even more the abstractness of what counts as a desired behavior and what should count as free riding. This is a direct result of the evolutionary cause of the emergence of social norms, insofar as they are an outcome of conformist transmission and moralistic punishment. As a matter of fact, punishment can stabilize *any* arbitrary kind of behavior.<sup>806</sup> Models developed by Richerson & Boyd show that "once enough individuals are prepared to punish any behavior, even the most absurd, and to punish who do not punish, then everyone is best off conforming to the norm. Moralistic strategies are a potential mechanism for stabilizing a wide range of behaviors."<sup>807</sup> Punishment stabilizes any behavior whenever the costs of being punished are higher than the benefits of the alternative behavior.

In this sense, the *specific content* of social norms is *intrinsically* irrelevant. Social norms can stabilize any behavior, be it cooperative or disruptive of the social order, good or bad for the individual, moral or immoral. No matter the content of the norm, it can be stabilized within a society if the

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804 See Fehr, E. and Fischbacher, U. (2004). Third-Party Punishment and Social Norms. p. 63.

805 See Henrich, N. and Henrich, J. (2007). Why Humans Cooperate: a Cultural and Evolutionary Explanation. p. 65.

806 Boyd, R. and Richerson, P. J. (2005a). Punishment Allows the Evolution of Cooperation (or Anything Else) in Sizable Groups. In Boyd and Richerson (Eds.), *The Origin and Evolution of Cultures* (pp. 166-188). New York: Oxford University Press.

807 See Boyd, R. and Richerson, P. J. (2005a). Punishment Allows the Evolution of Cooperation (or Anything Else) in Sizable Groups. p. 167.

cost of punishment is sufficiently high. This is one of the reasons underlying cultural diversity, for instance, and why maladaptive cultural traits can spread.<sup>808</sup> Social norms are stabilized by punishment, but they are produced and transmitted by processes of cultural learning.<sup>809</sup> Conformist transmission favors the spread of the most common behaviors adopted by the group, maintaining variation within the group and keeping its cultural blueprint.<sup>810</sup>

So far, nothing has been said about how social norms favor cooperation. Punishment and conformist transmission *per se* do not constrain their content. However, they are subjected to two kinds of content-driven constraints, deriving both from psychological biases and from group selection. On the one hand, the stability of social rules is endangered when they are widely incompatible with our social psychology. Social rules demanding behaviors that directly confront our instincts to protect our kin, to reciprocate with our friends, or other instincts such as those related to care, loyalty, authority, and sanctity,<sup>811</sup> can be so degrading to our nature that only through immensely costly enforcement they can be stabilized.

On the other hand, group selection can stabilize cooperative behavior, as discussed in chapter 2. Since different cultural groups can produce and preserve a wide range of behaviors through cultural transmission and moralistic punishment, then distinct cultural groups possessing peculiar social norms will emerge and, as a result of their cultural traits (including social norms), will vary in differential fitness. Some bands will develop more efficient ways to produce food and maintain larger populations; others will invent better weapons and military strategies, resulting in better results in warfare. In a strong cultural group selection scenario, there are substantial reasons to think that groups whose members rely on group-benefi-

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808 See Richerson, P. J. and Boyd, R. (2008). *Not by Genes Alone: how Culture Transformed Human Evolution*.

809 See Richerson, P. J. and Boyd, R. (2008). *Not by Genes Alone: how Culture Transformed Human Evolution*; Henrich, N. and Henrich, J. (2007). *Why Humans Cooperate: a Cultural and Evolutionary Explanation*. p. 66.

810 See Richerson, P. J. and Boyd, R. (2008). *Not by Genes Alone: how Culture Transformed Human Evolution*. Other biases could also play a role in the process, but for the sake of the argument, I will limit my analysis to conformist transmission.

811 See Haidt, J. (2012). *The Righteous Mind*. p. 2312.

cial norms sustaining cooperation – including suspicion against foreigners<sup>812</sup>, egalitarianism and a strong communal ethics<sup>813</sup> – would display higher relative fitness, on average, than groups relying on norms prescribing alternative behaviors.

Social norms are also powerful symbolic markers and, as such, define the boundaries and the identity of the group. This is an important point to be highlighted, because it is related to the first function performed by law as a structure. At first sight, *social norms define the boundaries of the group from a lower-level perspective* – the internal point of view of a community member who needs to identify in-groups and outsiders in order to decide with whom to interact socially. Individuals who adhere to social norms (including those related to language, religion, customs, dressing, among various others) are considered reliable and, as a result, a trustful source of social learning.

Despite that, we should notice that this group would be still a MLS1 evolved Darwinian entity. The boundary is not yet a group property, but a property defined by social norms transmitted by individual processes of social learning *and selected as such*. The cultural group is selected because the social norms transmitted by its individual members organize cooperation better than in other groups, not due to a group-level feature. This is a relevant step toward the MLS2 transition. Social norms, being backed by punishment and spread by conformist transmission, reduce variation within the cultural group and, consequently, de-Darwinize the cultural lower level. As a result of group selection, they also amplify cooperation, sustaining population growth. What do we need, then, to complete the MLS2 transition?

My hypothesis is that the transition between MLS1 and MLS2 selected human groups was made possible due to three interrelated factors occurring at the micro-dynamic level: (i) the *cultural accumulation of social norms* producing a network of intertwining rules that becomes a background assumption for the other norms; (ii) the recognition of the normative system

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812 See Baron, J. (2012). Parochialism as a result of cognitive biases. In Goodman, Jinks and Woods (Eds.), *Understanding Social Action, Promoting Human Rights* (pp. 203-243). Oxford: Oxford University Press; Blute, M. (1987). Biologists on Sociocultural Evolution: A Critical Analysis; McElreath, R., Boyd, R. and Richerson, P. J. (2003). Shared Norms and the Evolution of Ethnic Markers; Gil-White, F. J. (2001). Are Ethnic Groups Biological "Species" to the Human Brain? Essentialism in Our Cognition of Some Social Categories.

813 See Boehm, C. (1997). Impact of the Human Egalitarian Syndrome on Darwinian Selection Mechanics. *The American Naturalist*, 150(S1).

of social norms as having its own intentionality; and (iii) the differentiation between two kinds of social norms, primary and secondary rules (Hart), erecting the social foundations for the structuration of social roles and strengthening the power of cooperation at the micro-dynamic level. The resulting process links micro and macro-dynamics,<sup>814</sup> connecting the lower level of individual interaction and the higher level of social structure through law.

As already discussed, the psychological ability to imitate supports the slow accumulation of cultural traits, thus allowing cultural evolution. One generation builds on the knowledge constructed by past generations. The most marvelous inventions of mankind were built slowly, through relatively modest changes in a long chain of distantly connected events. Even though we like to attribute some inventions to specific individuals, the vast majority of creative innovations were productive of slow evolutionary processes in which the contribution of a particular agent is just a small step. As Isaac Newton once said, even a genius like him stood on the shoulders of giants.

When cultural traits accumulate, they may become subjected to what Tomasello calls the "ratchet effect."<sup>815</sup> Sometimes, individuals produce innovations that are further incorporated in the cultural tradition of their community, becoming more complex over time. Tomasello mentions the example registered by the anthropological artifactual record of the various hammers-like tools "that gradually widened their functional sphere as they were modified again and again to meet novel exigencies, going from simple stones, to composite tools composed of a stone tied to a stick, to various types of modern metal hammers and even mechanical hammers."<sup>816</sup> These innovations are preserved by processes of cultural learning (such as imitation), at least until another innovation replaces them and diminishes the risk of regression to a previous stage.

An important point to be noticed is that the ratchet effect could ignite the process of creating and maintaining memplexes, bundles of cultural traits that "replicate better as a part of the group related than they can on

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814 See Sawyer, K. R. (2011). The Causal Power of Social Structures: Emergence, Structure and Agency by Dave Elder-Vass. *J. Artificial Societies and Social Simulation (JASSS)* 14(3); Alexander, J. C. (1987). The Micro-Macro Link.

815 See Tennie, C., Call, J. and Tomasello, M. (2009). Ratcheting up the Ratchet: On the Evolution of Cumulative Culture. *Philosophical Transactions: Biological Sciences*, 364(1528), 2405-2415.

816 In Tennie, C., Call, J. and Tomasello, M. (2009). Ratcheting up the Ratchet: On the Evolution of Cumulative Culture. p. 37.

their own."<sup>817</sup> An initial set of cultural traits could be maintained by conformist transmission. New memes could be created by innovating individuals and be progressively incorporated into a growing background of accumulated cultural package. Some of the new memes would be incompatible with the body of accumulated knowledge and be rejected, or the community would have to (consciously or not) revise its older beliefs and incorporate the new cultural trait to its tradition. In this sense, the accumulation of cultural traits produces a symbolic network that becomes the background assumption for evaluating current social action – including the action of selecting what memes to preserve or abandon in the cultural context. As a result, the selection of new memes compatible with the network of already existing cultural traits becomes more probable, producing memplexes – memes that better replicate in that cultural environment than they would in any other. This is one consequence of the cultural ratchet effect: whatever has evolved in the past both imposes difficulties to return back to conditions of less complexity and constrains further evolution, imposing path dependence.

The same process can be thought to happen to social norms, which are nothing but a special subset of cultural traits. Over time, cultural accumulation maintains social norms evolved in the past and innovation processes produce new social norms that, in the future, will be integrated in the package of accepted social norms. New social norms, however, are evaluated in light of past norms; only those compatible with previous normative standards are maintained, in such a way that, in proper time, the *cultural accumulation of social norms* produces a matrix of interwoven rules that becomes the background normative assumption for the collective selection of novel social norms. The resulting process is a sophisticated system of interlaced social rules in which one rule presupposes a set of other social norms – but not only *legal* social norms specifically, since there is scarce functional differentiation and, as such, other kinds of norms and values become interwoven in the same cultural memplex. This is the heart of customary law.<sup>818</sup>

The second element occurring at the micro-dynamic level that builds the social foundations of law as a societal structure is the collective recognition of the normative system of social norms as having its own intentionality.

The members of bands subjected to a MLS1 evolutionary process lived somewhere between 400,000 and 100,000 years ago and probably were

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817 In Blackmore, S. (2000). *The Meme Machine*. p. 20.

818 See Hart, H. L. (1994). *The Concept of Law*. p. 46.

able to base their social action on symbolic markers;<sup>819</sup> and, in this symbolic world, the first rudiments of a *normative* sense were likely developed – a sense of what *ought to* be done not as a result of the *will* of a particular individual, but of the structured normative sense of communal identity. As Boehm claims, egalitarian hunter-gatherer bands are organized around a moralistic blueprint that defines "precise notions about the kind of society in which they wish to live"<sup>820</sup> and allows social action to take place under shared group goals and intentions (Tomasello and Searle).

Although Boehm does not provide a clear definition of what is the moralistic blueprint, I assume that the concept can be easily fitted within Parsons' cultural system – a unified "common ultimate value-system of the community."<sup>821</sup> In the same vein as the American sociologist, Boehm derives the moralistic blueprint from the local ethos, the values accepted as part of the group's tradition and which reveal collective intention, featured as "a preexisting shared conception of group goals"<sup>822</sup> and "normatively-based plans that can radically restructure social organizations and patterns of personal interaction."<sup>823</sup> Social norms are unequivocal expressions of collective intention, urging individuals to behave as demanded by the band. Interwoven in the fabric of social reality, social norms become the very expression of community will and, as such, are recognized as elements of an intentional system. The system of social norms is re-described, from the internal point of view of the participants of the moral community, as an intentional system.

Of course, this is a functional approach to the issue; most hunter-gatherer and forager bands, as other archaic and pre-modern societies, would attribute intentionality not to an abstract system of social norms, but to intentional agents incarnating collective identity, such as gods, spirits, or, in more abstract terms, the traditional ways of the people. This claim finds support in the research by the social psychologist Ara Norenzayan, who

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819 Richerson & Boyd claim that the archeological record registers signs of sophisticated symbolic behavior in this period, including complex cultural traits such as the red ochre, used for personal adornment, decorative items, and sophisticated weapons varying regionally – an indication of cultural variation between cultural groups. See Richerson, P. J. and Boyd, R. (2008). *Not by Genes Alone: how Culture Transformed Human Evolution*.

820 In Boehm, C. (1999). *Hierarchy in the Forest*. p. 193.

821 In Parsons, T. (1935). The Place of Ultimate Values in Sociological Theory. *International Journal of Ethics*, 45(3), 282-316.

822 In Boehm, C. (1999). *Hierarchy in the Forest*. p. 193.

823 In Boehm, C. (1999). *Hierarchy in the Forest*. p. 223.

sustains that the role of gods in traditional societies was precisely to personify communal values, being supernatural watchers of free-riders and embodying an intentional agent symbolically responsible for punishing transgressors. Every supernatural agent in the ancient world – from the Jewish gods Yahweh to deities such as the Egyptian Horus and the Inca Viracocha, and including Lord Buddha – had incredible powers of observation and monitoring mundane behavior.<sup>824</sup>

The combination between these two elements – the network of mutually reinforcing social norms and recognizing the complex of social rules as the realization of collective intentions – is an important, but not sufficient, condition for the emergence of law. Understanding social norms as the expression of the will of the collective entity taken as an organic individual constituting the communitarian identity revealed by tradition is an important step in institutionalizing law as a societal structure. When there is a generalized assumption that all members of the community accept the system of social norms, everyone formulates expectations based on the presumed expectations of the *validity* of law.

As the legal philosopher Herbert Hart argued in his *The Concept of Law*, however, this presumed expectation of the validity of social norms assumes a distinction between two *kinds* of social rules: primary rules and secondary rules. Primary rules are norms of conduct describing the desired behavior and the attached consequences to compliance or deviance.<sup>825</sup> Much can be done with primary rules, including the evolution of MLS1 cultural groups, since punishment and conformist transmission assume precisely the evolution of these kinds of social norms. The arbitrary cultural *content* of the norm (the desired behavior, or the *obligation*, in legal terms) is produced and diffused through processes of cultural innovation and transmission, while pattern maintenance (the consequence attributed to compliance or deviance) is granted through moralistic punishment.

Nonetheless, Hart also devises secondary rules, comprising rules of recognition, change and adjudication.<sup>826</sup> They are secondary in the sense

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824 See Norenzayan, A. (2013). *Big Gods: How Religion Transformed Cooperation and Conflict*. Princeton: Princeton University Press. pp. 23-25. A similar argument is advanced by David Sloan Wilson in Wilson, E. O. (1998). Consilience among the Great Branches of Learning. *Daedalus*, 127(1), 131-149.

825 Hart, H. L. (1994). *The Concept of Law*. p. 92.

826 Shapiro, S. (2009). What is the Rule of Recognition (and Does It Exist)? In Adler and Himma (Eds.), *The Rule of Recognition and the U.S. Constitution* (pp. 235-268). Oxford: Oxford University Press. p. 235; Hart, H. L. (1994). *The Concept of Law*. pp. 94-98.



that they are rules about (primary or secondary) rules, not concerning behavior. My focus, now, will be mainly on the rule of recognition. For Hart, in a pre-legal society, all rules are customary in the sense that they exist only as they are accepted and practiced by a majority of its members.<sup>827</sup> When disagreement occurs, there is no common normative source to resolve the controversy. Hart claimed that legal systems solve this problem by referring to a rule of recognition, a presupposed rule on which all the other legal norms find their validity. This meta-rule solves the issue of uncertainty by defining the "authoritative list of rules" on which the community can rely on in order to solve its legal disputes.<sup>828</sup>

According to Scott Shapiro, one important feature of the rule of recognition is that it is not only a logical rule, assumed as a needed assumption in the normative system, but also a social rule. In his own words, "the rule of recognition is social in the sense that it sets out a *group-wide* standard. Members of this group do not accept this rule 'for their part only,' but rather treat the standard it sets out as the official way in which the law is to be determined in their community."<sup>829</sup>

Although Hart uses the rule of recognition to differentiate between customary law – which are strictly based *only* on primary rules – and legal systems, defined by a union of primary and secondary rules, we can imagine a society based on customary law but which also accepts a rule of recognition. As a matter of fact, I assume this is precisely the transition scenario that took place when human groups completed the transition from human communities to full-blown Darwinian social individuals, possessing structural features that could be selected as adaptations at the societal level. The definition of the rule of recognition as a group-wide standard, acknowledged as the way in which the community determines the law, is exactly the same kind of social phenomenon described by Christopher Boehm as the moralistic blueprint. Even though Hart probably would not accept saying that ancient hunter-gatherer bands lived under a rule of recognition regime, I see no reason to say that they did not. Obviously, I am not saying that they lived under a full-blown legal system, but only that they had a shared normative sense on which they could decide which social norms were valid and which were not.

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827 Hart, H. L. (1994). *The Concept of Law*. p. 91.

828 Shapiro, S. (2009). What is the Rule of Recognition (and Does It Exist)? p. 238.

829 In Shapiro, S. (2009). What is the Rule of Recognition (and Does It Exist)? p. 239.

The transition between a customary normative system based only on primary rules and a customary system possessing a rule of recognition is a small change that opens enormous evolutionary possibilities. Firstly, this is a bottom-up process that stabilizes law as a structure at the societal level. It is a bottom-up process because the rule of recognition is founded on a network of individuals possessing a social psychology capable of attributing intentionality to a collective entity, which emerges to its own ontological (macro-dynamic) level. Being a meta-rule that decides on the validity of the other social rules, the rule of recognition is part of the presupposed normative expectations on which everyone formulates their own normative expectations. As a consequence, it becomes part of societal structure, enclosing the cultural boundaries of the system of social norms and filling the micro-macro link gap. Primary rules (social norms) bind individual interactions (micro-dynamics) and social structure (macro-dynamics) through secondary rules encoding criteria for normative validity. As a result, law becomes a structure of society, completing the transition that transformed human groups into full-blown Darwinian MLS2 individuals.

This process could be summarized in the following way: (i) the *egalitarian syndrome* had already taken place around 100,000 years ago within the *Homo sapiens* species,<sup>830</sup> founded especially on the psychological capacity to organize strong coalitions to displace usurpers and freeloaders; (ii) *moralistic punishment* and *cultural transmission* backed the evolution of social norms – including, in a gene-culture coevolutionary process, a psychological predisposition to normative reasoning;<sup>831</sup> (iii) *cultural group selection* sorted out the more cooperative groups, particularly those communities able to act as a single, intentional unit, unified by a *moralistic blueprint* to which individuals assign *collective intentions*; (iv) the moralistic blueprint encoded a rudimentary *rule of recognition* that validates social rules within a particular community, closing the frontier between the social system and its environment. If this reading seems similar to the scenario presented in the previous section, this conclusion should not sound odd. It is the same process read from the perspective of the processes happening *inside* the system's borders, or how law-as-structure is built from a view of the evolutionary bottom-up process.

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830 Boehm, C. (1997). Impact of the Human Egalitarian Syndrome on Darwinian Selection Mechanics. p. 101.

831 See O'Gorman, R., Wilson, D. S. and Miller, R. R. (2008). An Evolved Cognitive Bias for Social Norms.

A second evolutionary possibility opened by the emergence of the rule of recognition is the development of *other kinds* of secondary rules – rules of change and rules of adjudication. Although rules of change – norms that regulate how other rules are deliberately introduced, altered or excluded from the system<sup>832</sup> – evolved only later in the process of legal evolution,<sup>833</sup> rules of adjudication emerged quite early, and their appearance allowed the expansion of cooperation by reducing even more cultural variation (V), following Peter Godfrey-Smith's evolutionary scheme. Rules of adjudication assign authority to a subset of officials, making them responsible for identifying normative violations and for punishing transgressors. Hart claims that rules of adjudication foster the efficiency of law because the group does not need to assemble and discuss every normative breach, ascribing this function to an empowered adjudicator, who is responsible to determine whether the rule had been transgressed.<sup>834</sup>

The concentration of the adjudicative function under a social role also fosters cooperation for a second reason. Dyadic sanctions can be costly to free-riders, but they are also costly for those who apply them. An individual who punishes another can always be hurt in a fight and, therefore, he incurs in a cost. Why would someone punish a free-rider, then? Moralistic sanctions solve this problem partially (section 2.2.3) because many individuals become responsible for punishing transgressors and, as a consequence, the cost of punishing is spread through a large number of individuals. This is exactly what happens in the egalitarian bands described by Christopher Boehm; when a usurper tries to subordinate others, the entire group stands against him as a solid unit.

Directing the function of defining that a social norm had been broken to an individual (or a subset of individuals) occupying specific social roles is even more efficient, because *all the costs of punishment are symbolically borne by the adjudicators*. The group, or the executors of the punishment, merely apply a sanction defined by another. But why would someone bear this cost? The answer to this question is at the root of the origins of the reversal of the hunter-gatherer bands' egalitarian ethos: *the adjudicator reaps social benefits higher than the incurred costs of punishing others*. As a result, cooperation pays-off and the social structure is maintained.

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832 Hart, H. L. (1994). *The Concept of Law*. pp. 95-96.

833 Waldron, J. (1999). *The Dignity of Legislation*. Cambridge: Cambridge University Press. p. 20.

834 See Shapiro, S. (2009). What is the Rule of Recognition (and Does It Exist)? p. 243.

Understanding the logic of hunter-gatherer bands helps us understand the social rationality beneath the evolution of the adjudicative function. In an egalitarian band or even in slightly stratified societies, it would not pay to be an adjudicator, either because the band hardly would assign someone such authority, or because the cost of punishing would be so high that occupying such an attribution would be irrational. As Boehm identifies in many contemporary ethnographic examples, even the leaders in the first rank societies, chiefdoms – such as the "Big-Man societies" of Polynesia and Melanesia<sup>835</sup>, or the "headman societies" like the Etoro of New Guinea<sup>836</sup> – had barely no formal authority, being promoted to a leadership position due to admiration and influence in the group. In these societies, the strong egalitarian ethos still posed a threat against tyrannical pretensions.

Despite this, as human societies became more stratified and more social roles came forth – as in the social groups described as advanced primitive societies by Parsons, "characterized by stratification and by some kind of central political organization based upon relatively secure territorial boundaries"<sup>837</sup> –, concentrating powers (including adjudicating powers) on the hands of a chief became a feasible possibility because they had both *prestige*<sup>838</sup> and *political power*. As a result, the costs of punishing became negligible because, due to rank, they were absorbed by the social structure of officials (bodyguards, servants, advisors, among others) around the role of the tribal chief. *Cooperation is even more stimulated by the novel social*

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835 Boehm, C. (1999). *Hierarchy in the Forest*. p. 142.

836 Flannery, K. and Marcus, J. (2012). *The Creation of Inequality: How Our Ancestors Set the Stage for Monarchy, Slavery, and Empire*. p. 95.

837 In Parsons, T. (1966). *Societies: Evolutionary and Comparative Perspectives*. p. 47.

838 Even in most contemporary democracies the incumbents of adjudicative roles (judges) have special prestige. "In some societies, judges are specially and separately trained; in other societies, they are chosen from the ranks of eminent lawyers and jurists. In either case, I assume that they have high status in the political system and a position that insulates them from specific political pressures. In other regards, I assume they are typical of the high-status and well-educated members of their society. This is important for two reasons. First, because the society prides itself on being largely democratic, I shall assume that the judges share some of that pride and so are likely to be self-conscious about the legitimacy of their own activity if they engage in judicial review of legislation." In Waldron, J. (2005). *The Core of the Case Against Judicial Review*. *The Yale Law Journal*, 115, 1348-1406.

*structure, but the cost is high: the abandonment of the egalitarian ethos as a social foundation.*

If, in egalitarian bands, leaders were humble and subjected to intense social monitoring, in more stratified societies the hierarchical dispositions of our primate inheritance found a way to come back through social evolution. This passage from Flannery & Marcus, describing a farming stratified society (the Konyak Naga from Tibet) of the kind that was pervasive by the time human settlements became sedentary due to the development of agriculture (by 12,000 years ago)<sup>839</sup>, shows how the functions performed by a leader changed substantially when compared with egalitarian hunter-gatherer and forager bands:

"The chief's roles were to administer a district with the help of his small Ang subchiefs; to direct the affairs of his own village; to receive tribute in rice, pigs, fish, and water buffalo, to punish criminals; to resolve disputes; and to lead raids against enemies. Chiefs were proud and dignified figures who traveled with a large entourage of bodyguards, followers, and servants. Commoners approached the chief bowing, never looking directly at his face."<sup>840</sup>

Cooperation is stimulated within this new social framework because novel social forces can be released through the differentiation of roles. Social monitoring is not anymore a diffused function of every individual, but a duty assigned to the chief and his officials, allowing some role-specialization in other important areas, such as food production, trade or religious activities, among others. The benefits of third-party punishment in sustaining cooperation are obtained without the social costs of monitoring being borne by the whole community.

The role of law is fundamental in this process because it encodes the novel social structure by assigning the new social powers to the chief, including political, adjudicatory and, usually, religious powers. Law also grants integration at the micro-dynamic level by punishing outsiders and the rare heretics sustaining beliefs incompatible with the prevailing cultur-

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839 Richerson, P. J., Boyd, R. and Bettinger, R. L. (2001). Was Agriculture Impossible during the Pleistocene but Mandatory during the Holocene? A Climate Change Hypothesis.

840 In Flannery, K. and Marcus, J. (2012). *The Creation of Inequality: How Our Ancestors Set the Stage for Monarchy, Slavery, and Empire*. p. 202.

al values.<sup>841</sup> Religion progressively replaces the role moralistic blueprint had in egalitarian bands as a basis of legitimation and social stability.<sup>842</sup>

Law also promotes cooperation because it provides a definitive solution to second-order free riding. First-order free riding occurs when an individual refuses to cooperate in dyadic relations or fails to comply with social norms. As a result, the transgressor becomes subject to punishment applied either by the harmed party (as it occurs in direct reciprocity) or by others (as in indirect reciprocity). As discussed in section 2.2.1, indirect reciprocity is problematic because some agents might be inclined to cooperate with others (being first-order altruists), but fail to punish free-riders due to the costs of punishment (second-order free riding). Moralistic punishment solves this problem partially because it assigns the duty to punish to the whole community, diminishing the costs of punishment. Nonetheless, *there is a cost to punish*. When law assigns the attribution to apply sanctions to an elite of officials properly organized and recognized as legitimate authorities, the equation is balanced. The officials receive social acknowledgement of their value by receiving some social goods such as income and social prestige, which may be a proper counterweight to the incurred costs of punishing free-riders.<sup>843</sup>

Although Luhmann assumes that the role of providing social control or integration cannot be understood as the *function of law* because other structures and social systems can also provide these public goods,<sup>844</sup> I disagree with him. Luhmann maintains this position because he intends to specify

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841 See Norenzayan, A. (2013). *Big Gods: How Religion Transformed Cooperation and Conflict*. pp. 76-83.

842 See Flannery, K. and Marcus, J. (2012). *The Creation of Inequality: How Our Ancestors Set the Stage for Monarchy, Slavery, and Empire*. p. 60. See also Turner, J. H. (2010a). *Theoretical Principles of Sociology*, Volume 1. p. 226.

843 Here, the role of social psychology – again – is not to be underestimated, since prestige bias (the propensity to imitate successful individuals) might be an important force in the formation of this elite. A number of individuals possessing enough physical strength could be attracted to careers associated to social policing due to the social prestige attached to that role, imitating successful individuals performing that function.

844 On the concept of social goods, see Elinor Ostrom's definition: "Goods that are generally considered to be 'public goods' yield *non subtractive* benefits that can be enjoyed jointly by many people who are hard to exclude from obtaining these benefits. Peace is a public good, as my enjoyment of peace does not subtract from the enjoyment of others. Common-pool resources yield benefits where beneficiaries are hard to exclude but each person's use of a resource system subtracts units of that resource from a finite total amount available for harvesting." In Ostrom, E. (2009). *Understanding Institutional Diversity*. p. 23.

the peculiar characteristics of law that distinguishes it from other social systems.<sup>845</sup> But law evolves, from a bottom-up approach, precisely because it provides a reliable mechanism of social control and coordination between lower-level parts of the societal system (group members). Although other mechanisms can provide similar benefits (such as religion or morality), law is more efficient on this task and also has peculiar characteristics that distinguish it from other mechanisms. Morality cannot sustain role differentiation because it is a cultural feature of a particular social group, not affecting its structural level – as law does. Religion can maintain some role differentiation in a large society, but it does so precisely when backed up by a legal framework, as the Holy Catholic Church did particularly after the 11th century. As Harold Berman states:

"The church was a *Rechtsstaat*, a state based on law. At the same time, the limitations placed on ecclesiastical authority, especially by the secular polities, as well as the limitations placed upon papal authority within the church, especially by the very structures of ecclesiastical government, fostered something more than legality in the *Rechtsstaat* sense, something more akin to what the English later called 'the rule of law'."<sup>846</sup>

In this sense, the function of law, at the micro-dynamic level, is to maintain cooperation and reduce variation (V) by stabilizing the cultural traits (via social norm compliance) and the structure of roles within a particular population, assigning the duties to adjudicate and applying sanctions to specific roles. In doing so, law solves the evolutionary problem of second-order free riding, de-Darwinizing the micro-dynamic level in the process and enabling the transition to societal evolution, allowing evolutionary processes to happen at the very level of social structure.

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845 In his own words: "In stressing the *temporal* dimension as the basis of the function of law we disagree with an older doctrine in sociology of law that stressed the *social* function of law using concepts like 'social control' or 'integration'. With the choice of such concepts, which are central for the understanding of social systems at large, one runs the risk of misunderstanding the peculiar characteristics of law. Any advantage of the older doctrine, focusing on only one (or at least, one primary) function comes at the price of having to account for too many functional equivalents. As a result the differentiation of law can be understood only at the level of professions or organizations." In Luhmann, N. (2004). *Law as a Social System*. p. 143.

846 In See Berman, H. J. (1983). *Law and Revolution: The Formation of the Western Legal Tradition*. p. 214.

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My purpose, so far, was to describe the function of law in the macro-dynamic, meso-dynamic and micro-dynamic levels of social reality. Although the main focus of the last two subsections was to describe the functional role of law in the transition between societies evolved through MLS1 to MLS2 processes, I believe the function of law in contemporary societies has remained basically the same: (i) at the macro-dynamic level, law is a structural adaptation that encodes social structure into social norms, carrying information about how a particular society is specifically organized; (ii) law provides the means to create new meso-level units (such as firms, states, schools, and other organizations) and stabilizes the relational patterns between these units within the social structure, fostering new social possibilities; and (iii) law promotes cooperation in the micro-dynamic level by institutionalizing a system of primary and secondary rules founded on the assumed legitimacy of the normative system (rule of recognition); and by assigning specific powers to adjudicate and apply sanctions to particular roles (rules of adjudication), solving second-order free riding problems and releasing individuals to perform tasks other than to dedicate themselves to social monitoring.

This analysis has been focused on understanding what is the function performed by law and how it can be understood as a societal adaptation. Now, I want to focus on another set of issues: how does law relate to the human mind? This question will bring one longstanding discussion in legal theory – the idea of *natural law* – to the center of our discussion.

#### 4.2.3. The Natural Law Roots of All Legal Systems

Natural law is a long-standing intellectual tradition in legal theory. It seeks to rationally justify law on universally acceptable moral propositions, based on the belief of a fundamental unity of our species.<sup>847</sup> Differences on legal experiences are held as mere accidents,<sup>848</sup> as all law is ultimately founded on universalistic principles of justice that transcend all cultures and historical backgrounds. As Daniel Chernilo states, natural law theory

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847 Chernilo, D. (2013). *The Natural Law Foundations of Modern Social Theory*. Cambridge: Cambridge University Press. p. 4.

848 The term 'accident', here, is to be understood as in the Aristotelian tradition, in opposition to 'substance'.



is based on the belief in "a universal set of laws that are valid irrespective of place, time or culture."<sup>849</sup>

Natural law claims that certain normative principles are universally valid as a result of nature itself, not of social conventions. As a matter of fact, social conventions can also impose some legal duties, but they can be considered valid insofar as they observe the constraints imposed by natural law. Positive law, the law established through social conventions and political power, is only valid if compatible with the universal and immutable principles constitutive of natural law. In this sense, the standard textbook natural law position claims that legal validity is backed on pre-social moral norms derived from a certain idea of nature.<sup>850</sup>

My purpose, here, is not to provide a review of natural law theories, but to provide a tentative explanation for its pervasiveness in legal theory backed on the elements thus far discussed.<sup>851</sup> The idea that the validity of law is backed on pre-social norms has accompanied legal philosophy since its inception. From the ancient and medieval philosophers Aristotle, Cicero and Aquinas to the moderns Hobbes, Pufendorf, Locke, Kant, Rousseau and Vitoria, and the contemporary scholars Hans Kelsen, Herbert Hart, Alasdair MacIntyre and John Finnis<sup>852</sup> (among so many others!), most legal philosophers have written on this subject, either to embrace natural law or to argue against it.

The distinction between natural law and positive law is not only a Western phenomenon. It is spread throughout many other legal traditions. Traditional Chinese legal philosophy, for instance, also adopts a distinction between *li* and *fa*. *Li* refers to a naturalized perspective of the traditional Confucian principles backed on a set of (conceived of as) universal ethic

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849 Chernilo, D. (2013). *The Natural Law Foundations of Modern Social Theory*. p. 73.

850 Kelsen, H. (2003). *O Problema da Justiça* (Machado, Trans.). São Paulo: Martins Fontes. p. 71.

851 For an interesting review on the subject, see Contreras, F. J. (Ed.). (2013). *The Threads of Natural Law*. Dordrecht: Springer; Murphy, M. C. (2006). *Natural Law in Jurisprudence and Politics*. Cambridge: Cambridge University Press; da Cunha, P. F. (2013). *Rethinking Natural Law*. Heidelberg: Springer; Chernilo, D. (2013). *The Natural Law Foundations of Modern Social Theory*.

852 See Kelsen, H. (2013b). *What is Justice? Justice, Law, and Politics in the Mirror of Science*. Clark: The Lawbook Exchange, Ltd; Finnis, J. (2011). *Natural Law and Natural Rights* (2 ed.): Oxford University Press, USA; Turner, B. S. (2013). Alasdair MacIntyre on Morality, Community and Natural Law. *Journal of Classical Sociology*, 13(2), 239–253; Hart, H. L. (1994). *The Concept of Law*. pp. 185-200.

values<sup>853</sup>, while *fa* alludes mostly to imperial law and its enforcement. Precisely in the same way as a jus naturalistic philosopher could describe natural law, the *li* "derive[s] their universal validity from the fact that they were created by the intelligent sages of antiquity in conformity with human nature and with the cosmic order."<sup>854</sup> As in natural law theories, *li* is also a source of validity for positive law (*fa*): in the Chinese ancient legal philosophy, "*Fa* which is not grown out of *Li* can never be a real law; *Fa* just functions as a supplement to *Li*."<sup>855</sup> In the same vein, Hinduism also distinguishes between *dharma*, an expression of the universal cosmic order, and the royal commands that should, in principle, conform to it.<sup>856</sup> Natural law tradition is not unknown to Islamic<sup>857</sup> or Jewish traditions as well, a not so surprising fact since they are closer to the Western legal framework. As Sylvie Delacroix claimed, "there was a time when law could not be deemed legitimate, and hence binding, unless it was perceived as a fair approximation of a 'natural order of things'."<sup>858</sup>

Even if not always conceived of in the same exact terms, the distinction between a universal set of principles (natural law) and the set of arbitrary and local norms socially imposed (positive law) seems to be pervasive.<sup>859</sup> It seems to be a good candidate to what Parsons called an *evolutionary univer-*

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853 Shih, H. (1953). The Natural Law in the Chinese Tradition. *Natural Law Institute Proceedings*, 5, 119-153. See also Funk, D. A. (1990). Traditional Chinese Jurisprudence: Justifying *Li* and *Fa*. *Southern University Law Review*, 17, 1-67.

854 In Funk, D. A. (1990). Traditional Chinese Jurisprudence: Justifying *Li* and *Fa*. p. 2.

855 In Pan, J. (2011). Chinese Philosophy and International Law. *Asian Journal of International Law*, 1, 233-248.

856 According to Sundaram: "'Dharma' may be called no better than Natural Law. All creation, animate and inanimate, has each its own individual 'Dharma' to practice. It is the God-given law of one's own being and no transgression from 'Dharma' or Natural Law is permissible without serious consequences to the transgressor." In Sundaram, M. S. (1953). The Natural Law in the Hindu Tradition. *Natural Law Institute Proceedings*, 5, 69-88.

857 See Emon, A. M. (2004). Natural Law and Natural Rights in Islamic Law. *Journal of Law and Religion*, 20(2), 351-395; Hakim, K. A. (1953). The Natural Law in the Moslem Tradition. *Natural Law Institute Proceedings*, 5, 29-65. It is important to notice that some scholars argue against this thesis, claiming that the natural law tradition is strange to Islam. See, e.g., Crone, P. (2004). *God's Rule: Government and Islam. Six Centuries of Medieval Islamic Political Thought*. New York: Columbia University Press. pp. 263-264.

858 In Delacroix, S. (2006). *Legal Theory Today*. Oxford: Hart Publishing. p. 184.

859 I must highlight that Niklas Luhmann would probably not agree with this description. In his reading, the distinction between natural law and positive law only emerges in the context of pre-modern High societies, when societies

sal – defined by him as "any organizational development sufficiently important to further evolution that, rather than emerging only once, it is likely to be 'hit upon' by various systems operating under different conditions."<sup>860</sup> Evolutionary universals are not exclusively sociological; as a matter of fact, nature is full of examples of the phenomenon known, in biology, as *convergent evolution*.<sup>861</sup> Analogous traits performing the same function can evolve independently in different species, as bat and bird wings, which evolved in different processes, demonstrate.<sup>862</sup> The independent evolution of the eye in more than 40 separate animal species is another textbook example.<sup>863</sup> Usually convergent evolution occurs as a result of intertwined functional and developmental constraints which lead to convergent traits in different species. Similar environmental pressures, given favorable developmental path-dependence in different species, can result in the evolution of analogous traits.<sup>864</sup>

Parsons argued that the same process could happen in sociocultural evolution. Some sociocultural features could be so adaptive that, given enough time, they could evolve independently in different contexts. An obvious example is the invention of writing, which occurred independently among the Sumerians and Egyptians (by 3000 B.C.), the Chinese (by

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achieve a certain degree of complexity in which it makes sense to distinguish between invariant and mutable law. In his own words, "[t]he Greek differentiation of natural law and valid law by means of *nomos* was coined for precisely this situation of a legal order, the basic features of which are seen to be invariant, but the remainder seen as full of alternatives varying in different societies, and even modifiable. The concept of natural law only now emerges as a discriminatory concept and should not be mistaken for the archaic absoluteness of the internal legal order." In Luhmann, N. (2014). *A Sociological Theory of Law*. p. 144. In my proposed terms, the concept of 'natural law' should describe both what Luhmann designates as the "archaic absoluteness of the internal legal order," or what H. Patrick Glenn denominates Chthonic law, and which the German sociologist calls 'natural law'. In my perspective, both concepts are rooted in a psychological capacity to identify that some social rules are supposed to be universally valid.

860 Parsons, T. (1964). Evolutionary Universals in Society. *American Sociological Review*, 29, 339-357.

861 See McGhee, G. R. (2011). *Convergent Evolution*. Cambridge: MIT Press.

862 McGhee, G. R. (2011). *Convergent Evolution*. p. 7.

863 McGhee, G. R. (2011). *Convergent Evolution*. p. 67.

864 Losos, J. B. (2011). Convergence, Adaptation, and Constraint. *Evolution*, 65(7), 1827–1840.

1300 B.C.) and the Mexican Indians (by 600 B.C.).<sup>865</sup> The independent development of farming in China, Africa, Europe and North America is also well documented.<sup>866</sup> Parsons also acknowledged that evolutionary universals in sociocultural evolution could result from processes of cultural diffusion (basically, imitation), since one society could adopt the social practices from another social group.<sup>867</sup> Among the evolutionary universals mentioned by Parsons are social stratification, cultural legitimation, money, democracy and bureaucratic organization.<sup>868</sup>

One could say that the distinction between positive law and natural law is one such evolutionary universal. I will not follow this path. It is not so clear that this distinction is so functionally adaptive in any relevant socio-structural sense that it could be adopted in so many different societies as the ones mentioned. Nonetheless, the apparently ubiquitous acceptance of the natural law/positive law distinction requires some kind of explanation – and I think that Richerson & Boyd's dual inheritance theory, coupled with the moral grammar hypothesis, offers at least a good hypothesis. Although the distinction is to be understood as an evolutionary universal, it is not a socio-structural one, as Parsons could argue; it is one feature evoked of our innate mind that is to be supposed to exist in every human society.

My claim is that legal philosophy builds on intuitions deriving from our innate social psychology - what I have called our 'normative mind'. But this statement needs further clarifying. As a matter of fact, I am not the first one to propose that law evokes some aspects of our innate mind. In the last two decades, backed by evidence provided specially by the neurosciences, cognitive and social psychology, ethology and behavioral economics, some scholars have argued that legal institutions mirror our moral psychology. Larry Arnhart has sustained a new concept of natural law, backed on a Darwinian view of the human nature.<sup>869</sup> In his reading, Darwinism supports a specific set of "*conservative* natural rights," including

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865 According to Jared Diamond, the only undisputable independent evolution of writing occurred among the Sumerians and the Mexican Indians. See Diamond, J. (1999). *Guns, Germs, and Steel: the Fates of Human Societies*. New York: W. W. Norton & Company. p. 218.

866 Richerson, P. J., Boyd, R. and Bettinger, R. L. (2001). Was Agriculture Impossible during the Pleistocene but Mandatory during the Holocene? A Climate Change Hypothesis. p. 388.

867 Parsons, T. (1964). Evolutionary Universals in Society. p. 341.

868 See Parsons, T. (1964). Evolutionary Universals in Society. pp. 342-457.

869 See Arnhart, L. (2003). Darwinian Conservatism as the New Natural Law.

parental care, sexual identity, family bonding, friendship, political rule, war, health, beauty, wealth, speech, religious understanding, among others. Edwin Fruehwald has categorically affirmed that reciprocal altruism is the basis for the formation of contracts<sup>870</sup> and that the very idea of rights derive from human nature, arguing that "a universal system of basic rights is hardwired into our brains," including property rights, basic fairness, liberty rights and the right to be treated equally.<sup>871</sup>

Not so fast. I agree with Arnhart and Fruehwald toward the need of taking an interdisciplinary account on how our mind works in order to understand law. However, we simply cannot derive a particular set of rights from our social psychology. In doing so, they commit the same mistake sociobiologists did in the 1970s, by restraining culture on a leash guided by our nature. If the approach I have favored thus far is right, *cultural*, *social*, *structural*, *psychological* and *genetic* factors interact in many ways, imposing reciprocal constraints and enabling further evolution on each of these ontological levels. As a result, it is simply naïve to assume that there is a system of rights hardwired in our minds. More than that, there is no reason to assume that our innate moral psychology is conservative, as Arnhart and Fruehwald assume. As Peter Singer has also argued, the left also has good reasons to embrace a Darwinian view on human nature, for the roots of kindness and egalitarianism can also be found in our social psychology.<sup>872</sup> Our evolved nature is ambivalent and, as such, a good Darwinian theory should be able to explain dispositions related to all positions of the political spectrum, or otherwise it would not be able to explain the various facets of human behavior. By insisting that Darwinism supports conservative values and rights, Arnhart and Fruehwald naïvely commit the naturalistic fallacy.

Besides that, how can I sustain that the natural law/positive law distinction is one feature evoked of our innate mind supposed in every human society and simultaneously disagree with Arnhart and Fruehwald's claim that some legal institutions are a mirror of our own social psychology? My point against Arnhart and Fruehwald is not that legal institutions (or social institutions at large) do not reflect processes going on inside our minds, but that this is not a one-way process, from the mind to the socio-cultural environment. Our innate dispositions are always selected in socio-cultural domains according to sociocultural – not psychological – criteria.

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870 Fruehwald, E. S. (2008). Reciprocal Altruism as the Basis for Contract.

871 Fruehwald, E. S. (2009). A Biological Basis of Rights. pp. 212-213.

872 Singer, P. (1999). *A Darwinian Left*. London: Weidenfeld & Nicolson.

For instance, if we have a strong psychological disposition against incest – as we do have –, the stakes are high that we will live in a concrete society where there is a prohibition (a taboo) against this practice, but the possibility that sociocultural selection processes run against our instincts always exist. As a matter of fact, this is one of the expected results of dual inheritance processes: cultural evolution can, and often does, result in maladaptation – cultural practices that do not make sense in terms of biological fitness.<sup>873</sup> Incest was common in higher noble classes in Egypt, Tonga and Hawaii,<sup>874</sup> for instance – even though it was never a widespread practice in any known society, probably for being so disgusting to our innate dispositions.

In this sense, we can establish links between sociocultural processes and mental operations, not as a one-way causal relation, but as a two-way process in which sociocultural operations respond to mental operations by selecting them in their own terms, and vice-versa (see section 3.2.2.). Arnhart and Fruehwald are wrong because they do not see this process as mutually responsive and, as a result, depend on a *direct* causation model in which mental processes *are the only cause of* social operations. Social and cultural processes, embodied historically.

Now, I can finally lay down my hypothesis. The natural law/positive law distinction is the sociocultural response to the dual-based nature of the universal moral grammar, founded on the principle/parameter distinction.

The gene-culture coevolutionary theory could be a useful tool to understanding the classic debate between positivists and naturalists because it can help us elucidate the very terms of the debate. The most evident contribution of the dual inheritance theory, in this context, refers to the central assertions of the theory of natural law, according to which we do have a moral sense that constitutes part of our practical rationality, and there is a set of universally valid moral norms that we can grasp through our reason.

The assumed existence of a moral sense is compatible with the dual inheritance theory. As I claimed in the second chapter, the human mind is composed of overlapping layers of mechanisms related to moral action. First, kin selection explains the evolution of instincts related to altruism associated to individuals closely related genetically. In this sense, it is reasonable to assume that parental care – which St. Thomas Aquinas considered

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873 Richerson, P. J. and Boyd, R. (2008). Not by Genes Alone: how Culture Transformed Human Evolution. pp. 152-154.

874 Flannery, K. and Marcus, J. (2012). The Creation of Inequality: How Our Ancestors Set the Stage for Monarchy, Slavery, and Empire. p. 531.

one of the natural law precepts in his *Summa Theologica* – has an important genetic component related to inclusive fitness. Besides that, intertwined with these mechanisms, other cognitive structures related to the reciprocal altruism logic recognize reciprocity relations, equality and inequality situations, opportunists, and trigger emotional responses that allow us to punish free-riders and react against unfair circumstances.

In this perspective, our moral sense is the product of the mental mechanisms traditionally invoked by evolutionary psychologists. We have instincts and cognitive structures capable of identifying and enabling cooperation with genetically-related individuals and with those with whom we can foresee the possibility of obtaining future reciprocal gains, as a result of kin selection and reciprocal altruism. Emotions such as parental care, envy, jealousy, and indignation against injustices could be explained by these psychological systems.

Besides these mechanisms, dual inheritance theory also suggests the existence of another set of cognitive structures, product of the coevolution between our genes and culture, based on social tribal instincts. Among these instincts are the dispositions to cooperate with those sharing the same symbolic markers as ourselves, to support empathy with group members and suspicion toward outsiders, to comply with socially accepted rules and to punish trespassers.

All these instincts are interlocked in our social psychology, constituting the core of the universal moral grammar. According to Marc Hauser, our mind instinctively identifies the difference between moral rules and social conventions. Moral rules, associated with the moral principles that constitute the foundations of our moral sense, generate strong emotional ties. The violation of a social norm triggers an immediate and sharp emotional response, while the violation of social conventions usually provokes lighter emotional reactions.<sup>875</sup> The distinction between social conventions and moral rules seems to be adjusted to the normative assumptions nested within our minds as proposed by the dual inheritance theory. Failing to comply with moral norms activates more primitive cognitive dispositions, associated to the principles of the universal moral grammar that evolved (at least) in our primate ancestors much before cultural evolution had begun. Having been nested in our minds for such a long time in evolutionary terms, it is reasonable to assume that these mechanisms trigger much more intense emotions than the violation of merely conventional rules,

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875 In Hauser, M. D. (2009). *Moral Minds*. pp. 237-238.



culturally parameterized and which refer back to our tribal social instincts, which evolved much later, in the last 200,000 years.

The mentioned instincts, as the presupposed cognitive structures that support them, constitute the core of what could be called *natural law* under a biological perspective. This perspective allows us to support both claims that there exists a moral sense that shapes the way through which our normative judgments are elaborated and that we have a cognitive predisposition to accept certain sets of social norms, compatible with our social instincts. By accepting this premise, it is reasonable to assume the universality of certain values and moral canons, such as parental love toward their children, the acceptance of equality in small groups, indignation against those who breach social norms and reaction against unfair circumstances. Our innate moral psychology embodies, as a result of evolutionary forces, certain values around which all social institutions are built. In a certain way, gene-culture coevolution theory favors the natural law theory, insofar as it accepts that social institutions depend on the moral principles embodied within the universal structure of human cognition.

The fact that institutions are built over normative principles nested within an innate social psychology does not deny that societal (structural), social and cultural evolution can produce vastly different societies adopting far different legal institutions. Group selection, over a long period of time, has produced cohesive societies supported by a huge variety of different social norms enforced by moralistic and, later on, institutional punishment. However different these social norms are, not all of them are compatible with our innate social psychology and, as such, some of them would hardly be learned and, as a result, would probably not be stabilized in a population even after many generations.<sup>876</sup>

At this point, it should be clear how positive law and natural law are complementary from the standpoint of dual inheritance theory. Natural law theory is partially right when it claims the existence of normative principles over which social institutions are built. The natural law written in our minds, which determines all the structures of any possible normative

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876 This is why the economist Paul Rubin argues that, although a wide range of cultural variants (and, among them, social norms) are imaginable, only a small set of them can be stabilized within a population. According to him: "There is room for wide, but not unlimited, variation in culture. Certain individual rules are indeed programmed into us, and we violate these rules only at great peril. Similarly, the idea that social rules are arbitrary or that such rules can be purely created by reason is false." In Rubin, P. (2002). *Darwinian Politics: The Evolutionary Origin of Freedom*. New Brunswick: Rutgers University Press. p. 2.



experience, is based in certain universal principles. However, these principles accommodate a huge diversity of culturally-fixed parameters – and not only the moral values considered correct by natural theory philosophers. All extinct and extant legal systems turned out to be possible because they were founded over these principles, which are intrinsic to the structure of our normative cognition.

As such, natural law is not law – it refers to normative dispositions nested in our psychology, not to a *specific* set of rules. The principles nested in our innate social psychology are broad and highly underdetermined, allowing much room for variation according to the cultural, social and societal background. They only lay down a set of constraints that the social, cultural and societal domains must take into account in order to build their own complexity, in each level. Otherwise, they would probably – albeit not necessarily – fail to stabilize. Social systems highly incompatible with our innate psychology must be structured so strongly around social mechanisms of control (such as third-party institutional punishment) that probably they would not be able to hold as a stable sociological organization for long. As Rubin says, we can only violate the rules programmed into us "at great peril." In this sense, although our innate psychology does not determine completely the content of social norms embraced by legal institutions, it is an important precondition for their evolution.

If social systems are to violate the principles nested in our social psychology and remain stable enough to remain viable over time, they must find a way to fool our social psychology, making it believe that its principles are being respected while they are actually not. As discussed in chapter 2, Richerson & Boyd assume that this is exactly what happened in the course of cultural evolution. Highly stratified and inegalitarian institutions were built over small almost-egalitarian groups that resemble Pleistocene tribes, in such a way that each segmented group can be linked to other groups in a highly hierarchical fashion while being, internally, highly egalitarian. Structural, social and cultural evolution can fool our minds – but by no means it can ignore them.

By acknowledging this point, we can weaken the natural law classic position according to which there is a universal moral that can *determine* the normative content of legal norms. Legal positivists are right in considering a failure the natural law theoretical attempt to back the validity of positive law by verifying if its contents fit certain values inherent to human nature or discovered through the means of human reason. Natural law is not law – and as such cannot be a source of normative validity –, but it is a cognitive ability to reason according to social norms and certain normative dis-

positions. Legal positivists, however, are wrong in regarding as an irrelevant issue the fact that much of the content of social norms (including much of positive law) can be understood as a social system response to our innate psychology, producing equilibrium between culture, psychology and societal structure.

By ignoring this point, legal positivism cannot discuss its own sociological foundations, such as the rule of recognition (Hart), which can only be properly understood if we do take into account the complex psychological dispositions involved in its social operations. Hart can only discuss the rule of recognition as a social assumption<sup>877</sup> in his normative system because he had already conflated all the psychological dispositions needed to even conceive of such a sociological achievement. As a result, it is a blind spot in his theory. If Kelsen's positivism does not depend on such assumption because his basic norms are conceived of as a merely logical – and not sociological – assumption, then his very concept of law depends on coercion: "a definition of law, which does not determine law as a coercive order, must be rejected."<sup>878</sup> The very idea of coercive order presupposes the possibility of applying sanctions according to social norms<sup>879</sup> – but there is no logical reason to assume that we do not incorporate a theory about human behavior and psychology in our assumptions, including the fact that our social mind is inclined to respond to punishment.<sup>880</sup>

My aim here is not to discuss legal positivism in detail, but to state a broad claim that even the logically well-founded theories of Hans Kelsen and Herbert Hart can only be properly understood when taking into account some psychological dispositions – if only to discuss how can a group of people identify a rule of recognition or respond to institutionally imposed sanctions. It is impossible to discuss these issues without a proper psychological theory, and dual inheritance theory, coupled with Niklas Luhmann's systems theory, Jonathan Turner's multiple level sociological analysis and Godfrey-Smith's Darwinian populations approach provide a comprehensive framework to discuss how a specific social psychology has evolved to allow law as we know it to be institutionalized, emerge and evolve as a specialized social system. Each of these theories provides a par-

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877 See Shapiro, S. (2009). What is the Rule of Recognition (and Does It Exist)?.

878 In Kelsen, H. (1978). *Pure Theory of Law*. p. 54.

879 Kelsen, H. (1978). *Pure Theory of Law*. p. 26.

880 Kelsen himself knew that: "[T]he image of hell as the place of punishment is much more vivid than the usually vague idea of a life in heaven which is the reward for piety." In Kelsen, H. (1978). *Pure Theory of Law*. p. 30.

tial picture of a wider framework that, if properly understood, can give us a better understanding of law.

This discussion about natural law is not without purpose. The micro-dynamic function of law – promoting cooperation – can only be properly exercised because social norms can be properly understood and processed by our psychology. In this sense, natural law – the normative assumptions wired into our brains – are a background assumption of every legal system. And every legal system – as every other social system – must adapt itself to our social psychology in its own terms. This trivial point is not without consequences. It means that our psychology works as a selective environment for social norms and, as such, the constraints imposed by our minds impose a certain path dependence effect on the evolution of law. Even if structural, social and cultural evolution also play an important role in legal evolution, we should keep in mind the relevance of our innate psychological dispositions.

Maybe the most important way in which our social psychology affects legal evolution is by providing evolutionary attractors toward social norms that fit better with our innate dispositions. Social norms can vary a lot, but norms that fit better to our social psychology cause less distress and are more easily accepted and complied with. We should expect that social norms fitting the normative assumptions of our social mind would spread more than other norms. The result of this process would be that even hugely different societies should share many social norms because our psychology would work as a powerful evolutionary attractor. This conjecture could be one explanation for the natural law theory assumption that some social norms are ubiquitous in human societies, such as the prohibition of incest, rape and homicide (within one's community).<sup>881</sup> These norms are evolutionary universals because they are so compatible with our social psychology that they evolve in many different social and cultural backgrounds.

At the micro-dynamic level, law enhanced cooperation by assigning authority to individuals concentrating relative political power and specialized in adjudicating conflicts and applying punishment. At the same time, law

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881 See Mikhail, J. (2012). Moral Grammar and Human Rights: Some Reflections on Cognitive Science and Enlightenment Rationalism. In Goodman, Jinks and Woods (Eds.), *Understanding Social Action, Promoting Human Rights*. Oxford: Oxford University Press; Mikhail, J. (2010). Is the Prohibition of Homicide Universal? Evidence from Comparative Criminal Law. *Brooklyn Law Review*; Mikhail, J. (2007). Universal moral grammar: theory, evidence and the future. *Trends In Cognitive Sciences*, 11(4), 143-152.

encoded the novel social structure into social norms, releasing the evolutionary possibility of selection of societal structures such as societies possessing governments and social stratification. Both possibilities are grounded on the human psychological capacity of reasoning through social norms, which remains as a background precondition constraining all social action. Natural law is a psychological precondition for the emergence and evolution of all law.

##### 4.3. From Egalitarian Foragers to Stratified Empires: Hierarchy Strikes Back

Now, I want to turn to another set of questions, which is at the root of human societal evolution. In 95% of *Homo sapiens'* history as a species, we lived in egalitarian bands of foragers and hunter-gatherers. Around 12,000 ago, the Holocene climatic stabilization allowed our ancestors to progressively live in sedentary settlements and develop agriculture. At the same time, a sudden change began to occur in the societal structure: the first stratified societies emerged, bringing back inequality and the long-gone hierarchy in our primate inheritance. How did this process happen? What role did law play in the transition to stratified societies? And why did human societies become stratified at all?

In order to address these questions, I will refer basically to a recent book co-authored by the archeologists Kent Flannery and Joyce Marcus, *The Creation of Inequality: How our Ancestors Set the Stage for Monarchy, Slavery and Empire*<sup>882</sup>. In this masterpiece, the authors advance a theory about the emergence of stratified large-scale societies from small bands of foragers and hunter-gatherers, based on the idea that small changes in the social logic of egalitarian bands paved the way to stratification. Other important references will be, once again, Niklas Luhmann's systems theory, since it provides a sociological theory of stratification, and Talcott Parsons' perspective on the evolution of pre-modern societies – especially his *Societies: Evolutionary and Comparative Perspectives*.

This point is important to understand the relevance of constitutionalism as a societal structure, as will become clear in next chapter. Stratified societies, albeit unequalitarian and possessing a highly unequalitarian structure, may seem wicked to the eyes of a 21st century observer, but they were capable of solving many public good problems and sustaining cooperation

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882 Flannery, K. and Marcus, J. (2012). *The Creation of Inequality: How Our Ancestors Set the Stage for Monarchy, Slavery, and Empire*.

in huge large-scale societies. Think about the Roman or the Chinese Empires, which lasted for thousands of years and supported immense populations, or pre-revolutionary France, less than 300 years ago, to take an example closer to us in chronological terms. If we have been egalitarians for 95% of our history as a biological species, there is no doubt that we have also lived in stratified societies for the most part of our history after we started living in cities and preserving our memories in a written form.

We cannot take for granted the Western lifeway, assured by egalitarian institutions. Constitutional democracies reject the social logic of stratified societies and sustain cooperation in – again – egalitarian societies, but in order to understand how they could have evolved, we must first understand the sociological structure of stratification and the reasons why it emerged.

#### 4.3.1. Breaking down the Egalitarian Logic: An Anthropological Perspective

By the end of the last Ice Age, around 15,000 B.C., modern humans still lived as in most part of the last 200,000 years – in small foraging groups whose members were encouraged to value generosity and altruism.<sup>883</sup> By 12,000 years ago, when the last glacial period was almost over, the Holocene brought a much more stable climate, enabling our ancestors to settle in fixed lands and begin to develop agriculture.<sup>884</sup>

Some groups kept their old ways of life, such as the Caribou Eskimos or the African !Kung San, who supposedly survive under the same premises until our days. Their society, as described by Boehm, Clastres and so many other anthropologists, is based on the extended family – the core family, some surrounding families and, sometimes, unrelated neighbors. If the dual inheritance hypothesis is right, these bands are sustained mostly by a culture based on social norms highly integrated with our universal moral grammar, especially based on kin selection, reciprocal altruism and, to some degree, indirect reciprocity.

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883 Boehm, C. (1999). *Hierarchy in the Forest*; Flannery, K. and Marcus, J. (2012). *The Creation of Inequality: How Our Ancestors Set the Stage for Monarchy, Slavery, and Empire*. p. 36.

884 See Richerson, P. J., Boyd, R. and Bettinger, R. L. (2001). Was Agriculture Impossible during the Pleistocene but Mandatory during the Holocene? A Climate Change Hypothesis.

Flannery & Marcus explore the social logic underlying these bands. According to them – as Boehm also argues –, equality is justified within the band through the assumption of a moral justification supposedly accepted by all its members. To Boehm, this justification is provided by the moralistic blueprint, but he does not offer more elements to define exactly what the anthropological nature of the moralistic blueprint is. Flannery & Marcus go beyond Boehm and claim that every society adopts its own cosmological explanation, which provides the moral justification for its social logic<sup>885</sup>.

Egalitarian bands' cosmology justifies egalitarianism in a way that fits our universal moral grammar. As Boehm argued, the egalitarianism nested within our universal moral grammar does not mean absence of hierarchy, but the disposition to engage in active group control against inequality (see section 2.2.3.2). The hierarchy is reversed because the leader is not at the top of the social pyramid, but at its bottom. Flannery & Marcus do not fully agree with Boehm's approach, though. For them, hunter-gatherer bands also display a dominance hierarchy, in which the alpha is not a group member, but invisible supernatural beings – in a way that resembles the already mentioned thesis by Norenzayan that, in traditional societies, gods played the role of supernatural monitors of free-riding.<sup>886</sup> In this hierarchy, deities are the *alphas*, the ancestors play the role of the *betas*, and the other descendants are mere *gammmas*:

"When we look at hunters and gatherers, we see a dominance hierarchy as clear as that of chimpanzees. It is, however, a hierarchy in which the alphas are invisible supernatural beings, too powerful to be overthrown by conspiracy or alliance, and capable of causing great misfortune when disobeyed. The betas are invisible ancestors who do the bidding of the alphas and protect their living descendants from harm. The reason human foragers seem, superficially, to have no dominance hierarchy is because no living human can be considered more than a gamma within this system."<sup>887</sup>

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885 Flannery, K. and Marcus, J. (2012). *The Creation of Inequality: How Our Ancestors Set the Stage for Monarchy, Slavery, and Empire*. p. 21.

886 See Norenzayan, A. (2013). *Big Gods: How Religion Transformed Cooperation and Conflict*.

887 In Flannery, K. and Marcus, J. (2012). *The Creation of Inequality: How Our Ancestors Set the Stage for Monarchy, Slavery, and Empire*. p. 59.

What evidence do they provide to back such a strong claim? Flannery & Marcus review much archeological, historical and anthropological evidence, showing that, in many different societies, hierarchy was in fact justified under the assumption that the leader (king, chief, emperor) was linked to revered ancestors or to a deity, such as the Egyptian pharaoh, who was a deity himself.<sup>888</sup> They show similar processes in far different societies living in Hawaii, Tibet, Polynesia and New Mexico.

The cosmology of egalitarian bands is intrinsically linked to their social norms, providing the moral justification for their existence and content as part of an immemorial tradition, whose origin is long gone and which is only preserved in the myths of the band. This is the basis of the chthonic law, a term coined by H. Patrick Glenn to name the legal tradition of archaic societies such as the egalitarian bands of foragers and hunter-gatherers.<sup>889</sup> Chthonic law is mainly traditional, maintained through oral transmission and the wisdom of the elders.

What are the other elements of the cosmology adopted by egalitarian bands? According to the archaeologists, **all** hunter-gatherer societies featured the following set of common principles: (i) admiration toward generosity and social reprehension against selfishness; (ii) maintenance of social relationships by reciprocated gifts; (iii) names are magic and ancestors' names should be assigned distinct respect; (iv) homicide is unacceptable, (v) as also incest; (vi) the groom should give services or gifts to the bride's family. Even in these egalitarian bands, however, some premises allowed for a degree of inequality, such as (vii) the assumption that men are more virtuous than women; (viii) elders are more virtuous than youths; and (ix) ethnocentrism<sup>890</sup>

Some of these bands, however, were organized around clans. In most hunter-gatherer bands, the extended family, composed by the kin group and a community of reciprocating neighbors, was the sole social unit. With the formation of clans, bands began to organize themselves in a segmentary way – showing the first signs of segmentary differentiation – the first kind of social structure encoded in social norms.<sup>891</sup> When this happens, our social psychology begins to show the first signs of disruption

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888 See, e.g., Flannery, K. and Marcus, J. (2012). *The Creation of Inequality: How Our Ancestors Set the Stage for Monarchy, Slavery, and Empire*. p. 409.

889 Glenn, H. P. (2010). *Legal Traditions of the World*. p. 65.

890 Flannery, K. and Marcus, J. (2012). *The Creation of Inequality: How Our Ancestors Set the Stage for Monarchy, Slavery, and Empire*. p. 54.

891 See Luhmann, N. (2013). *Theory of Society*. p. 27.

against the novel social order. The clan/band distinction backfires in our predisposition to divide the moral world between in-groups and outsiders. As a result, there is some tension between clans composing the same segmentary society. Individuals from one clan could see the members of another clan as outsiders, not as participants of the same group. The consequence, to Flannery & Marcus, is that the social logic of segmentary societies reframed the relationship between clans according to this reasoning, treating a violation against a member of one clan as a violation against the whole clan and requiring a collective response – the principle of *social substitutability*.<sup>892</sup> The first signs of this behavior registered in the archaeological record are from 15,000 years ago in the Nile Valley.

Once different social units had arisen, some societies saw changes in their social logic. The development of agriculture had a major impact in this process, not because it caused inequality to emerge, but for providing more opportunities for societies to change their inner social logic. As a matter of fact, some societies, despite not having become agricultural, developed egalitarianism, and as a matter of fact Flannery & Marcus show the ethnographic example of this occurring among the Chumash (Pacific Coast of North America) and Nootka peoples (Canada).

The Nootka, for instance, experienced debt slavery between the years 800 and 1200 A.D., as evidenced by three processes – the acquisition of luxury items, such as polished nephrite, the growth on the number of households and specially the increase in the size of the largest houses. Anna Marie Prentiss, an archaeologist who excavated the Nootka site in the beginning to the 21st century, believes that the growth in size of the largest houses occurred as a result of the incorporation of poor families accepting to work for the wealthier ones in return for shelter and food. Over time, the most successful families would pass on their accumulated wealth to their offspring, generating a class divide between wealthy families and poor families working for them.

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892 "An important change in social logic, however, took place with the formation of clans: a kind of 'us versus them' worldview seems to have been created. If someone from Clan A murdered someone from Clan B, it was considered a crime against the victim's entire clan. This required a group response. As the result of a principle Raymond Kelly calls 'social substitutability', Clan B could avenge its member's death by killing anyone from Clan A, even women or children who were innocent of the original murder." In Flannery, K. and Marcus, J. (2012). *The Creation of Inequality: How Our Ancestors Set the Stage for Monarchy, Slavery, and Empire*. p. 40.



How did this happen in an egalitarian society? As weird as it might seem to be at first sight, the social logic behind this reasoning is compatible with reciprocal altruism. Flannery & Marcus explain the process in these terms:

"While she does not phrase the process in such terms, we believe that Prentiss is describing what anthropologists call debt servitude, or even debt slavery. The first step in such a process is to loan food and valuables to impoverished neighbors. The second step is to foreclose on the loan. Families who accept food and shelter from wealthy neighbors are in a poor position to deny the latter's claims to luxury items and hereditary privileges."<sup>893</sup>

This example is important because it shows Flannery & Marcus' main point: slight changes in social logic can lead to major social changes. Based on an egalitarian premise highly compatible with reciprocal altruism, a community turned out to accept slavery.

Even if inequality can emerge in hunter-gatherer and foraging bands, as the Nootka example shows, it can be more easily stabilized in agricultural societies. The Nootka example is a good case to understand this point. After the depletion of the band's main source of nourishment, salmon, the villages were eventually abandoned, showing the limitations of supporting a large and unequal society through wild sources of food.<sup>894</sup> Incipient cases of inegalitarian bands might have fallen back to egalitarianism due to resource depletion.

Farming and animal husbandry overcome this barrier by creating the possibility of food surplus and new forms of wealth.<sup>895</sup> But not all agricultural societies became inegalitarian *as fiat*; some of them remained egalitarian, while others oscillated between equality and rank, and others made hierarchy a permanent feature of their social structure.

According to Flannery & Marcus, the stabilization of inequality occurred through small-step changes in the social logic of the societies. If in egalitarian bands any individual attempt to behave bossy was subjected to moralistic sanctioning, small changes in the cosmology of ancient societies have made them prone to accept that some individuals are more presti-

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893 In Flannery, K. and Marcus, J. (2012). *The Creation of Inequality: How Our Ancestors Set the Stage for Monarchy, Slavery, and Empire*. p. 79.

894 Flannery, K. and Marcus, J. (2012). *The Creation of Inequality: How Our Ancestors Set the Stage for Monarchy, Slavery, and Empire*. p. 80.

895 Flannery, K. and Marcus, J. (2012). *The Creation of Inequality: How Our Ancestors Set the Stage for Monarchy, Slavery, and Empire*. p. 66.

gious than others, creating a hierarchy of respect associated to virtue. The anthropologist Paula Brown, describing the Chimbu tribe in New Guinea, identified four prestige categories. First, there were the unproductive men, incapable of providing the means to sustain their own families and to pay the bride-price for a wife. Following them, the average Chimbu men were the ones that could provide the adequate means of subsistence for their families. Above them, a third category was composed of more successful individuals, capable of supporting more wives and dependents. The most respected members of the Chimbu tribe were its Big Men (*yomba pondo*), corresponding to no more than 5 percent of its individuals, and who had enough personal authority to initiate or veto communal activities and to speak for the group in the presence of outsiders.<sup>896</sup>

As odd as it might seem, this difference in treatment does not mean necessarily a violation of the hunter-gatherer band's egalitarian premise. Individuals incapable of providing enough food to their own families can be seen suspiciously as free-riders and not worthy of trust, while individuals capable of sustaining more people than their immediate family are considered virtuous. The route for gaining respect and prestige, as would be expected in the logic of egalitarian bands, is by being useful for the group – by being generous, for instance, or a great warrior that crushes more enemies, or a competent merchant that imports desired goods for the community. But if there is no necessary contradiction with egalitarianism in this, over time, the social effect of prestige can be deleterious and stabilize inequality in a previously egalitarian society.

This point has been identified by the anthropologist Marcel Mauss<sup>897</sup> more than 60 years ago in his analysis of the *potlatch* - a gift-giving ceremonial feast practiced among many indigenous peoples. Hunter-gatherer bands – as many other ancient societies – used to host feasts in order to share food (especially meat), as a means of securing everyone access to critical resources.<sup>898</sup> This practice was retained in agricultural archaic societies, but when prestige came into scene, it was hijacked as a means of channeling *even more* status to the "Big Men." Being already in a position of possessing more material resources, the prestigious individuals used feasts to

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896 See Brown, P. (1973). *The Chimbu*. London: Routledge. pp. 41-45.

897 Mauss, M. (2002). *The Gift: The Form and Reason for Exchange in Archaic Societies*. Routledge.

898 See Hayden, B. (2014). *The Power of Feasts: From Prehistory to the Present*. Cambridge: Cambridge University Press; Boehm, C. (1999). Hierarchy in the Forest. p. 192.

distribute food and, by doing so, to gain respect for being generous. In segmentary societies, composed by different clans, Big Men competed for prominence by giving feasts in order to impress (and ultimately humiliate) their neighbors, who were expected to reciprocate – in the very egalitarian logic of hunter-gatherer bands. Other clan's Big Men, aiming to gain even more prestige, would attempt to offer an even more spectacular feast. This logic imposes an escalation of gifts that could, in time, deplete the resources of a given clan – and inadequate payment could generate debt and provoke armed warfare or even debt slavery. As economists like to remind us, there is no such a thing as a free lunch.

Prestige is still a function of achieved renown, not of inherited rank. Big Man Societies still monitor and control attempts to usurp power, while allowing some inequality in prestige. However, prestige is not transmitted in the hereditary line; even if a father can teach a son how he can earn his own prestige, he will have to fulfill his own destiny. Everyone starts out as an equal at birth and attain positions of prominence later in life through personal achievement. According to Flannery & Marcus, achievement-based societies became very common after the development of agriculture, as has been observed in the archaeological record of ancient societies – in Peru (4,000 B.C.), Mexico (3,500 B.C.) and the Natufian people of the Near East (10,000 B.C.).<sup>899</sup>

So far, we are still talking of communities evolved through MLS1 processes, which are being selected as a result of the fitness of the group's members – the individuals and the way cultural traits (among them, social norms) affect their behavior. These societies are mostly what Talcott Parsons calls primitive societies, based mostly on clan-solidarity and on the "mere multiplication of structurally identical units"<sup>900</sup> (clans). The transition to MLS2 selected groups, which can be selected as a result of structural adaptations related to the societal level, occurs when hereditary rank comes into play.

Again, Flannery & Marcus argue that a number of prestige-based societies altered even further their own social logic to enable hereditary rank. Here, the conflicts between different social groups come into play, because one elite group (a clan, for instance) must impose its own superiority by justifying it as a result of the accepted cosmology (the "moralistic

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899 See Flannery, K. and Marcus, J. (2012). *The Creation of Inequality: How Our Ancestors Set the Stage for Monarchy, Slavery, and Empire*. p. 108.

900 In Parsons, T. (1966). *Societies: Evolutionary and Comparative Perspectives*. p. 43.

blueprint," or the ideology) – which, of course, is manipulated to grant them privileges. The creation myths, religion and moral beliefs of the group are manipulated to justify the naturalization of inequality, entrenching a hierarchical social structure via cultural means. In Parsonian terms, the cultural system is providing the integration of the social system.

In order to support this claim, archeologists examine a number of societies in which elite privileges were created. The first example is based on the anthropologist Simon Harrison's study about the Avatip, a Manambu community in Papua New Guinea.<sup>901</sup> According to Harrison, the tribe was a typical prestige-based society, which accepted three basic paths to leadership: political leadership, based on generosity, strength, debating skills and hunting ability; religious leadership, based on sacred knowledge; and warfare leadership, granted to the best warriors. The tribe was divided into lineages, which were in their turn grouped into subclans, and subclans into clans.

Harrison identified some tension between political and religious leaders (*simbuks*), who were respected but had almost no secular power. Most of the political leaders were clan elders who became notorious debaters, and the *simbuks* usually taught the ritual secrets of the tribe to their own sons, ensuring that the religious office would be kept within their family. Sometimes a *simbuks* could develop debating skills, becoming both a religious and a political leader. While Harrison stayed at Avatip, he saw a struggle between a powerful subclan (the *Maliyaw*) against the other 15 clans for the monopolization of ritual authority. Possessing a strong number of acclaimed orators, the strategy advanced by the *Maliyaw* was to use their debating skills in order to unify secular and political authority by changing the Avatip cosmology with the explicit purpose to "create an office for which only men born into the *Maliyaw* subclan would be eligible."<sup>902</sup> In the tribe's cosmology, more power was assigned to the clans possessing more ancestors – and the *Maliyaw* actively pursued influence by debating the lineage of some ancestors' names and eventually convincing others that their clan had more ancestors than the others and, consequently, more power to indicate religious and political leaders. Of course, the cosmologic reformation attempt could only work if the *Maliyaw* were capable of con-

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901 The following is based on Flannery, K. and Marcus, J. (2012). The Creation of Inequality: How Our Ancestors Set the Stage for Monarchy, Slavery, and Empire. pp. 187-191.

902 In Flannery, K. and Marcus, J. (2012). The Creation of Inequality: How Our Ancestors Set the Stage for Monarchy, Slavery, and Empire. p. 189.

vincing the other subclans to acquiesce or of imposing their superiority by military force.

Flannery & Marcus discuss similar processes in other communities, such as the Kachin (Myanmar) and the Konyak Naga (Tibet), and propose that there is archaeological evidence showing that "prehistory is full of cases where one segment of society manipulated itself into a position of superiority."<sup>903</sup> Whenever, in a segmentary society, one clan has an advantage over the others, it will attempt to reframe the tribe's cosmology in order to justify a position of prominence and subvert the previous relatively egalitarian order of prestige-based societies.<sup>904</sup> Whenever this is successfully done, over time the lower-ranked clans can even accept their subordinate condition. There is psychological evidence that individuals have a general tendency to support the *status quo* when they are in disadvantage and see themselves as powerless to overcome the situation.<sup>905</sup> As Jon Jost *et al* claim, a system-justifying ideology alleviates the emotional distress caused for being treated unfairly.<sup>906</sup>

Now, we are examining societies evolved through MLS2 selection processes, which have become Darwinian individuals in their own right, possessing a societal structure that cannot be understood in terms of any of its constitutive elements. Law encodes this structure in social norms, including rules of adjudication and clear rules for the succession of chiefs.<sup>907</sup> As a curiosity, an important point to be stated in support of the claim that law was already a societal structure in rank societies is that Herbert L. Hart considered the prior regulation of royal succession as a sign of the existence of law. This is precisely one of the main points of his critique against Austin's positivism, who thought that law was observed merely as the result of a general habit of obedience. In order to criticize Austin, Hart invokes the example of Rex I, a king who issued a set of laws which were observed as mere habit. After his death, why would individuals observe the

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903 Flannery, K. and Marcus, J. (2012). The Creation of Inequality: How Our Ancestors Set the Stage for Monarchy, Slavery, and Empire. p. 191.

904 Flannery, K. and Marcus, J. (2012). The Creation of Inequality: How Our Ancestors Set the Stage for Monarchy, Slavery, and Empire. pp. 205-206.

905 See Jost, J. T. and Hunyady, O. (2003). The Psychology of System Justification and the Palliative Function of Ideology. pp. 127-129.

906 Wakslak, C. J., Cher, Jost, J. T., T. J., Tyler, T. R. and Chen, E. S. (2007). Moral Outrage Mediates the Dampening Effect of System Justification on Support for Redistributive Social Policies. *Psychological science*, 18(3), 267-274.

907 See Flannery, K. and Marcus, J. (2012). The Creation of Inequality: How Our Ancestors Set the Stage for Monarchy, Slavery, and Empire. p. 224.

commands issued by Rex II, if the conditions for the stabilization of a new habit (obeying to the orders issued by Rex II) were not present? The answer, Hart says, is that Rex II must be obeyed because there is a rule, accepted by all, that bestows political power to him. This is further evidence that, in Hart's terms, rank societies already had law as a structure, since a succession rule is a secondary rule of change: it assigns power to an individual.<sup>908</sup> Also, rank societies had secondary rules of adjudication, as they are the first ones in which there is a clear attribution of administrative duties to the chief, including the task of adjudicating conflicts and punishing criminals.<sup>909</sup>

It is important to notice that the return to hierarchy is *not* a mere return of hierarchy in sociological terms. There is a qualitative difference between the hierarchical human groups emerging in the Holocene and the hierarchical groups in which our primate ancestors have lived. Primates like chimpanzees or gorillas live in hierarchical groups, but they can exercise no *political* power<sup>910</sup> at all. Being an alpha only implies having access to better resources, such as meat and sex, but the alpha does not command the betas and gammas in any meaningful sense.

In human groups, on the other hand, decisions that bind all its individual members must be taken, and this implies the existence of political power. This is the result of collective intentionality, an ability that only we, humans, have.<sup>911</sup> In egalitarian bands existing over most of the last 200,000 years or so, political power was diffusely shared among all individuals, who, using their ability to form coalitions, could actively monitor usurpers and prevent the concentration of power in the hands of a single individual or a subgroup. When rank societies began to emerge, political power begins to concentrate in some clans, excluding powerless families, incapable

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908 See Hart, H. L. (1994). *The Concept of Law*. pp. 95-96.

909 Flannery, K. and Marcus, J. (2012). *The Creation of Inequality: How Our Ancestors Set the Stage for Monarchy, Slavery, and Empire*. p. 225; Parsons, T. (1966). *Societies: Evolutionary and Comparative Perspectives*. p. 49.

910 Here, I adopt the sociological concept of political power advanced by Talcott Parsons: "Power (...) is generalized capacity to secure the performance of binding obligations by units in a system of collective organization when the obligations are legitimized with reference to their bearing on collective goals and where in case of recalcitrance there is a presumption of enforcement by negative situational sanctions." In Parsons, T. (1963). *On the Concept of Political Power. Proceedings of the American Philosophical Society*, 107(3), 232-262.

911 Tomasello, M. (2014). *A Natural History of Human Thinking*.

to counter this sociological shift usually because of differential advantages of the superior group.<sup>912</sup>

The last step toward the evolution of stratified societies, according to Flannery & Marcus, is the establishment of a sharp division between social strata. While rank societies adopt a continuum between the lowest ranked individual and the chief, stratified societies institutionalize a categorical difference between an aristocracy and the commoner. Usually this is done via class endogamy: members of one stratum are not supposed to marry other stratum's members – and, when this happens, the offspring is assigned a lower status.<sup>913</sup>

Again, archeologists point that small changes in the cosmology of rank societies provided the legitimation needed to ease, over time, the emotional distress caused by social inequality on the lower social strata.<sup>914</sup> Early Hawaii tribes in Polynesia, mentioned as an example of such transformation by Flannery & Marcus, were rank societies divided into five to seven districts.<sup>915</sup> Two transformations occurred between the years 1100 and 1400 A.D., when the relationships between the older and younger clans became unstable. In most rank societies, older clans are considered more sacred than younger lineages and, as a result, have more legitimacy to rule. Despite this, the junior lineages organized coalitions in order to challenge the senior chiefs.

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912 As Parsons states: "Two primary sets of forces seem to support the emergence of differentiation among lineages. One – very familiar in our tradition of social thought – is the tendency to differential advantage, property in land being its most important vehicle. Positions which are advantageous, whether by virtue of productivity, centrality of location, or other factors, tend to be systematically preempted. Especially during periods of segmentation and population growth, the less advantaged lineages tend to be forced into inferior locations and to be deprived of resources. Despite the variety of bases of such advantage, it is certainly difficult to maintain the strict egalitarianism presupposed by any system of the equivalence of clan collaterals, once there are firm institutions of property." In Parsons, T. (1966). *Societies: Evolutionary and Comparative Perspectives*. pp. 43-44.

913 See Flannery, K. and Marcus, J. (2012). *The Creation of Inequality: How Our Ancestors Set the Stage for Monarchy, Slavery, and Empire*. p. 313.

914 For a similar argument, see Bellah, R. N. (2011). *Religion in Human Evolution* (Kindle ed.). Cambridge: The Belknap Press of Harvard University Press. pp. 573-575.

915 The following is based on Flannery, K. and Marcus, J. (2012). *The Creation of Inequality: How Our Ancestors Set the Stage for Monarchy, Slavery, and Empire*. p. 333.

In order to prevent the coup, the Hawaiian chiefs began marrying their own sisters and half-sisters, ensuring that political power and prestige (*mana*) would stay within their own lineage – and, to justify this, they "revised Hawaiian cosmology to indicate that such sibling marriage was legitimate, since the gods from whom the chiefs descended had married their siblings as well."<sup>916</sup> A second cosmological revision created stratification based on the previous ranks. Early Hawaiian rank society was divided into four ranks: landless commoners, landed gentry, lesser chiefs and high chiefs. The Hawaiian chiefs eradicated the class of landed gentry by expropriating their lands and creating two strata, the hereditary nobility (*ali'i*) and the commoners (*maka'ainana*). Based on the account provided by Marshall Sahlins, Valerio Valeri and Irving Goldman, Flannery & Marcus tell how they provided a cosmological justification for the novel social structure. In all egalitarian bands, prestige-based and rank-societies, everyone descended from a group of early human mythical ancestors, no matter how prestigious individuals or clans were. In Hawaii, the high chiefs broke from this tradition – the commoners descended from human ancestors, but the noble lineage had divine origins: "In late prehistoric Hawaii, stratification was justified on the grounds that commoners had merely descended from human lineage founders, while the genealogies of the *ali'i* went back to the Sky God and Earth Goddess."<sup>917</sup>

Flannery & Marcus argued that the hunter-gatherer bands reverted the hierarchical predispositions of our primate psychology by assigning the alpha status to divinities and the beta status to mythical ancestors, relegating the mere status of gamma to everyone else. When stratified societies emerge, this social logic is used to justify social inequality. They show evidence of similar processes of transition from ranked segmentary societies to somewhat stratified societies in Tonga (by the 17th century) and La Venta, in Mexico (by 2,000 B.C.). The most impressive account in support of the thesis advanced by the archeologists is the reconstruction of Egypt's anthropological history. Between 11,000 and 7,000 years ago, some hunter-gatherer bands began occupying the Nile Valley region. Between 7,000 and 5,000 years ago the first rank societies emerged in the region, varying in structure, rituals, architecture and culture. In the region of Upper Egypt (at the south of nowadays Egypt), at least three rank societies arose at this

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916 In Flannery, K. and Marcus, J. (2012). *The Creation of Inequality: How Our Ancestors Set the Stage for Monarchy, Slavery, and Empire*. p. 333.

917 In Flannery, K. and Marcus, J. (2012). *The Creation of Inequality: How Our Ancestors Set the Stage for Monarchy, Slavery, and Empire*. p. 333.



time in the cities of Nekhen (latter known as Hierakonpolis), Naqada, and Abydos. Nekhen was the largest settlement, possessing enough technology to produce mace heads, beer, pottery, stone vases and flint daggers. Analysis of coprolites (desiccated feces) suggests that elites had greater access to meat than commoners. By 5,200 years ago they had conquered the mentioned neighboring cities and established a stratified society, as evidenced by the royal cemetery suggesting that the hereditary elite belonged to a social stratum separated from the others.

In time, Nekhen advanced to conquer Lower Egypt, unifying Egypt by 3,100 B.C and establishing a monarchy. The Egyptian Empire was created by integrating many autonomous territories, which became administrative districts (*hesps*) under the authority of the Pharaoh, who was not only a descendant from the gods, but a divinity himself – Re, the Sun. Egyptian cosmology, similarly to the mentioned Hawaiian case, provided justification for the marriage between the Pharaoh and his sisters and half-sisters, in order to preserve prestige within the upper stratum. In Egyptian mythology, the gods Osiris and Isis mated and had Horus as son.<sup>918</sup> Egyptian stratification was divided not only into two classes, but in many more: first and foremost, the Pharaoh, the *supernatural alpha*; the governors of the *hesps* and the vizier (the Pharaoh's second in command); the scribe; the overseer; the commoner.

Each *hesp* was a segmentary unit in the kingdom, divided in the same level within the stratified chain of command.<sup>919</sup> This administrative division shows another feature of stratified societies: how they combine the principle of segmentation with hierarchy. From the beginning, Nekhen incorporated the conquered settlements as administrative units – which, later on, became the *hesps* of Egyptian administration.

This is a common principle in stratified societies; in order to be manageable, their structure must be fractured in more manageable political structures.<sup>920</sup> Richerson & Boyd consider this as a consequence not only of political manageability, but also of a way to cope with our psychology. Being

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918 See Flannery, K. and Marcus, J. (2012). *The Creation of Inequality: How Our Ancestors Set the Stage for Monarchy, Slavery, and Empire*. pp. 401-413.

919 In this sense, stratification is not incompatible with the segmentation, since it cross-cuts different aspects of social organization. See Luhmann, N. (2013). *Theory of Society*. p. 12.

920 Flannery & Marcus mention the same administrative structure, based on the incorporation of smaller organizational units into larger governments, in other societies – such as the unification process occurring in Hawaii during Kamehameha's rule and among the Zulu under Shaka. See Flannery, K. and Marcus, J.

designed to deal with smaller groups, our social psychology would more likely work better in social environments engineered in ways as similar as possible with the environments from where our instincts evolved. As Richerson & Boyd say, "humans construct a social world that resemble the one in which our social instincts evolved."<sup>921</sup> By segmenting a large social administration into smaller administrative units, this is achieved because the smaller units (the government, the *hesps*) are similar to tribes. Inside each unit the relationships are egalitarian (each *hesp* administrator is an equal, for instance), while the relationships between members of different strata are intrinsically inegalitarian.<sup>922</sup> In this sense, social institutions can overcome partially the resistance imposed by an egalitarian psychology, because it grants at least to a limited degree that some relationships are maintained in equal status. Stratification is built over segmentation.<sup>923</sup> As Fiona Jordan *et al* say:

"A key challenge of administering large-scale societies is coordinating their multiple subunits, whether these are provinces, settlements, cities, or tribes. One factor which can facilitate the emergence and spread of large-scale societies is the prior existence of a set of social units that already share a common language, culture, or administrative structure. For example, the relative homogeneity of Greek city-states may have facilitated the higher-level aggregation of Greek leagues and the early expansion of the Macedonian Empire (Malkin 2011). In other cases, such homogenous administrative units must be reproduced to extend a territory, as was the case with the construction of Roman cities during imperial expansion (Boatwright 2000) or European colo-

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(2012). The Creation of Inequality: How Our Ancestors Set the Stage for Monarchy, Slavery, and Empire. pp. 341-354.

921 In Richerson, P. J. and Boyd, R. (2008). Not by Genes Alone: how Culture Transformed Human Evolution. p. 230.

922 This is why, for instance, the Greeks held as equals only those internal to one particular stratum. As Luhmann states: "The Greek term *isonomia* referred to the equality of citizens located within one stratum of society. These citizens successfully claimed to be (or to represent) the whole system. But *isonomia* presupposed inequality with respect to other strata of society." In Luhmann, N. (1982). The Differentiation of Society. p. 234.

923 This point is stressed by Niklas Luhmann in the following terms: "Stratification, then, depends crucially on segmentation, which it can use only at the second level of differentiation defining the equality of sub-subsystems and the internal environment of status groups." In Luhmann, N. (1982). The Differentiation of Society. p. 243.

nial imposition and formalization of tribal chiefs in Africa to serve as points of control for long-distance administration (Leeson 2005)."<sup>924</sup>

The explanation of how the egalitarian logic of Pleistocene hunter-gatherer bands was turned upside-down by hierarchical stratified societies provided by Flannery & Marcus is backed not only on anthropological and archaeological evidence, but it also makes sense from the evolutionary perspective thus far adopted. First, this explanation takes into account our social psychology. In every step, the small changes in social logic actually might make sense to our universal moral grammar – even to justify something as heinous as debt slavery through the logic of reciprocal altruism. Also, the "changing cosmology" hypothesis can also be justified in terms of symbolic marking. Our social psychology inclines us to be loyal to the belief-system adopted by our group and, over time, this might mean that we can naturalize a given cosmology, no matter how unfair it might be, as System Justification Theory argues.

Even if the inequalitarian logic of rank and stratified societies might seem incompatible with our innate sense of fairness, understood as inequity aversion, we must remember that Boehm's argument is that our nature is ultimately ambivalent. We are not willing to give up on equality without fighting for our autonomy, but we also have an innate disposition to accept subordination providing there is no way to change circumstances.<sup>925</sup> I acknowledge this claim might seem unfalsifiable under a Popperian account, but I advance it as a hypothesis. After all, this disposition is observed even in chimpanzees: a beta can be a subordinate for his entire life, but whenever he sees a glimpse of hope that he can successfully organize a coalition and take the alpha down, he will do so.<sup>926</sup> Like the chimpanzees, we do not enjoy being subordinated, but we might accept so if we must. In the building process of stratification, this happened probably as a result of unpredictable circumstances, as Parsons and Flannery & Marcus claimed; once one group gained a competitive advantage over others, they could use it in order to retain privileges and, eventually, climb the ladder of rank and, later, stratum. The legitimation basis provided by the belief-system

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924 Jordan, F. M., van Schaik, C. P., François, P., Gintis, H., Haun, D. B. M., Hruschka, D. J., Janssen, M. A., Kitts, J. A., Lehmann, L., Mathew, S., Richerson, P. J., Turchin, P. and Wiessner, P. (2013). *Cultural Evolution of the Structure of Human Groups*. p. 110.

925 Boehm, C. (1989). *Ambivalence and Compromise in Human Nature*.

926 Waal, F. d. (2007). *Chimpanzee Politics: Power and Sex among Apes*. Baltimore: The Johns Hopkins University Press. pp. 78-136.

(culture) can also work as a way to reduce psychological distress, by causing individual psychology to accept an egalitarian situation as if it were deserved for past behavior.<sup>927</sup>

Second, the anthropological explanation advanced by Flannery & Marcus also makes sense from a multilevel selection perspective. Although I have not stressed this point in the reconstruction of their theory, they highlight the fact that in each transition – from egalitarian bands to prestige-based tribes, to hereditary ranked societies, to stratified kingdoms – the archaeological record shows signs of advances and retreats. Some egalitarian bands became ranked societies and later on retreated back to egalitarianism as a result of internal revolt against elites. In other cases, societies displayed a long history of cycling between rank and egalitarianism.<sup>928</sup>

This is exactly what would be expected from an evolutionary perspective: a multitude of different kinds of social organizations emerging and being selected, and individuals struggling for their own cultural and biological fitness. As a result, many different equilibria would be expected to arise: in some cases, the internal egalitarian forces of individuals opposing strong chiefs would disrupt rank and bring the egalitarian logic back. In other circumstances, the chief would be more skilled and gather more support to establish hereditary rule. Eventually, some societies became capable of establishing social stratification and encoding it in their still undifferen-

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927 The idea of *karma* in Hinduism can be understood in these terms: "But religious belief systems do much more than validate intuitions about justice and conceptions of God as benevolent. As Weber (1922/1963) noted, they also uphold the current social order by suggesting that justice is (or will be) served. The Hindu concept of karma, for instance, and the related doctrine of the transmigration of souls (i.e., reincarnation) commit individuals to believing that they deserve their present status in society and also that, if they live in a manner that is consistent with religious prescriptions, they will be rewarded in their next lives. Thus, belief in the doctrine of the transmigration of souls (i.e., reincarnation) helps to explain why 'it is precisely the lowest classes, who would naturally be most desirous of improving their status in subsequent incarnations, that cling most steadfastly to their caste obligations, never thinking of toppling the caste system through social revolutions or reforms' (Weber, 1922/1963, p. 43)." In Jost, J. T., Hawkins, C. B., Nosek, B. A., Hennes, E. P., Stern, C., Gosling, S. D. and Graham, J. (2014). Belief in a just God (and a just society): A system justification perspective on religious ideology. *Journal of Theoretical and Philosophical Psychology*, Vol 34(1), 56-81.

928 See Flannery, K. and Marcus, J. (2012). The Creation of Inequality: How Our Ancestors Set the Stage for Monarchy, Slavery, and Empire. pp. 195-201.

tiated legal structure (understood in a normative-like cosmology), stabilizing its sociological form.<sup>929</sup>

As a result of the contact between such different societies, some of them would be selected and other become extinct as a result of social, cultural and structural selection. Over time, stratified societies prevailed over the segmentary prestige-based bands and the egalitarian hunter-gatherer bands, allowing for the evolution of complex kingdoms and empires – the so-called pre-modern high cultures (Luhmann) or historic intermediate empires (Parsons). But what evolutionary advantages did these societies have over the others in order to be selected?

#### 4.3.2. The Adaptive Function of Stratification and the Law of Pre-Modern High Cultures

In his already mentioned *Evolutionary Universals in Society*, Parsons advances a theory about the universality of stratification. Agreeing with Flannery & Marcus, Parsons assumes that stratification occurs as a result of at least two endogamous groups being part of the same society. As a result of many circumstances, one of the groups stands out in relation to the other – either because it is more prestigious than the other – as it occurs when a junior lineage splits from a senior group –, or because it has differential access to resources. The outcome of this process is vertical differentiation, resulting in economic and political power to the more advantageous faction and the relegation of the other lineages to subordinate positions.<sup>930</sup>

Stratification is an adaptive structure because it enables new possibilities for the social system. As Parsons states, "the society as a system gains functional advantages by concentrating responsibility for certain functions."<sup>931</sup> First and foremost, there is a concentration of political and religious roles in the hands of the ruling social rank, which is needed to cope with problems of internal order arising from population growth and territorial expansion in larger societies, related to increasing violence, organizing mili-

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929 See Luhmann, N. (1982). *The Differentiation of Society*. p. 234.

930 In Parsons' own words: "On the one hand, relative advantages are differentiated: members of cadet lineages, the kinship units with lesser claims to preferment, are 'forced' into peripheral positions. They move to less advantaged residential locations and accept less productive economic resources, and they are not in a position to counteract these disadvantages by the use of political power." In Parsons, T. (1964). *Evolutionary Universals in Society*. p. 343.

931 Parsons, T. (1964). *Evolutionary Universals in Society*. p. 343.

tary forces against outsiders and upholding the minimal conditions of civil life, such as norms concerning property, commerce and marriage.<sup>932</sup>

According to Luhmann, the evolution of society can be described as a process of increasing system differentiation along two asymmetric axes: system/environment and equality/inequality.<sup>933</sup> Sociological evolution has produced, so far, three possible combinations between these two dichotomies – segmentation, stratification and functional differentiation. Although we have already discussed the first two kinds of systemic differentiation, it is important to specify how they fare with the two mentioned axes.

Segmented societies are differentiated into equal subsystems. In archaic societies, for instance, tribes are segmented in clans accorded with equal status, and inequality results from merely casual and random environmental conditions, such as differential access to important resources. It is important to notice that, from a multilevel perspective, within each clan there are also interaction patterns sustained over an innate evolved social psychology that, in this sociological structure, maintain egalitarian relationships within and between different clans – based mostly on kin ties, reciprocal altruism, indirect reciprocity and symbolic markers.

As expected, the loyalty of each individual is stronger to his/her own clan (subsystem), and when one clan gains differential advantages over the others, it is not hard to understand the emergence of stratification. The ethnocentric bias of our social psychology evolved as an adaptation because it fostered cooperation within the community, making us prone to cooperate with the members of our own group and to be suspicious against outsiders. When larger societies emerge, composed by hierarchical subsystems, this bias can be diverted to distinguish among members of the same society but belonging to different social groups – what, over time, facilitated the symbolic discrimination based on social stratum. Stratification builds on our social psychology.

From a sociological perspective, a stratified society is differentiated into unequal subsystems, aligning the asymmetry between system/environment with equality/inequality.<sup>934</sup> Equality regulates the relationships between higher stratum members, while inequality regulates the other strata, which are relegated to the environment. By describing itself as being the whole social system and describing the lower strata as the environment, the high-

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932 Parsons, T. (1964). *Evolutionary Universals in Society*. p. 343.

933 Luhmann, N. (1982). *The Differentiation of Society*. p. 233.

934 Luhmann, N. (1982). *The Differentiation of Society*. p. 234.

er stratum fuses its own identity with a hierarchical conception of society.<sup>935</sup> Luhmann mentions the Greek conception of *isonomia* as an example of how equality is interpreted in stratified societies. Isonomia related to "the equality of citizens located within one stratum of society," who "successfully claimed to be (or to represent) the whole system."<sup>936</sup> The lower strata are not part of the social system because they do not participate in communication, possessing no relevant political and economic status as a consequence of the unequal distribution of wealth and power.

But why has stratification evolved? Its emergence could be explained in the anthropological terms advanced by Flannery & Marcus, but its maintenance and ultimate spread in Ancient and Medieval times can only be explained as a result of its role as a social adaptation. Otherwise, we should expect that a much wider range of societies would have successfully resisted stratification. Flannery & Marcus acknowledge that some societies developed stratification and later on retreated back to more egalitarian structures, but they also claim that most of these societies were later on incorporated into other stratified societies. The extant egalitarian bands can be seen as enduring living fossils, which resisted due to the fact of occupying inhospitable territories, attracting no interest from more stratified societies to occupy the same environmental niche. Even if there were only a few stratified societies in the beginning, they changed profoundly their more egalitarian neighbors after their emergence.<sup>937</sup>

In Luhmann's account, stratification was a result of society's increase in size and complexity, which required new ways to cope with administrative issues besides personal interaction. The concentration of political communication among the upper stratum members solves this problem by assigning the responsibility of collective decisions to only a small fraction of partners. In this sense, stratified societies were also organized around some principles of incipient functional differentiation.

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935 Luhmann, N. (1982). *The Differentiation of Society*. p. 235.

936 In Luhmann, N. (1982). *The Differentiation of Society*. p. 234.

937 In their own words: "Even after rank began to appear, it could not always overcome the widespread desire for a level playing field. There were, as we will see later in this book, societies that oscillated between equality and hereditary rank for decades. To be sure, some of those societies eventually made inequality permanent. They were in the minority when they arose but often, like the Tlingit, had a dramatic impact on their egalitarian neighbors." In Flannery, K. and Marcus, J. (2012). *The Creation of Inequality: How Our Ancestors Set the Stage for Monarchy, Slavery, and Empire*. p. 91.

Functional differentiation will be better explored in the next chapter, but, for the moment, it is important to highlight that it relates to the organization of "communication processes around special functions to be fulfilled at the level of society."<sup>938</sup> In complex societies such as most post-industrial contemporary constitutional democracies, society is defined as a system of heterarchical social systems fulfilling different functions (law, politics, economy, religion), refusing to impose a regulatory hierarchical pattern between them.<sup>939</sup>

In stratified societies, the incipient existing functional differentiation is organized around the hierarchical differentiation of roles – and in it lies most of the advantages of stratification. As discussed in the last section, many rank societies – such as in the Avatip – already distinguished between religious and political roles, for instance. This nascent role differentiation, however, did not imply the existence of a fully specialized and autonomous system of communication of politics or religion. As a matter of fact, many of these roles were distributed according to mixed criteria, concentrating different functions in the same roles. As a result, these societies could display, at most, incomplete functional differentiation.<sup>940</sup>

But why is this an advantage at all? Again, the explanation lies in a selectionist evolutionary account. In 2008, Joseph Henrich and Robert Boyd published an article in *Current Anthropology*, in which they contended that a process of cultural group selection could explain why "groups that establish certain forms of unequal social exchange may outcompete egalitarian societies and those with less competitive forms of inequality."<sup>941</sup> In their mathematical model, they simulated competition between many groups displaying varying parameters related to population size, production surplus created by the specialized division of labor, technological complexity and degree of inequality. The model showed that cultural group selection not only favors specialization due to the positive correlation between specialization, technological and population growth and overall production, but also that egalitarian societies could not maintain economic specialization because they are more homogeneous in the productive techniques adopted, lacking the diversity needed for specialized

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938 In Luhmann, N. (1982). *The Differentiation of Society*. p. 236.

939 See Luhmann, N. (2013). *Theory of Society*. p. 87.

940 Luhmann, N. (2014). *A Sociological Theory of Law*. p. 129.

941 Henrich, J. and Boyd, R. (2008). Division of labor, Economic Specialization, and the Evolution of Social Stratification. *Current Anthropology*.



division of labor.<sup>942</sup> Stratification fosters specialization and productivity, enhancing skill formation, greater food provision, more effective armies, and better prospects in terms of coordination and cohesion.<sup>943</sup>

Although the model proposed by Henrich & Boyd is based on a population in which groups are selected according to the economically more successful cultural traits, the proposed approach entails what I have denominated structural selection among societies. What is being selected is not only certain cultural memes, but the very societal structure. One example might help clarify this point. Imagine that in the simulated model proposed by Henrich & Boyd there are three competing societies. The first one is egalitarian and adopts the productive technique A. The second society is stratified and adopts two strata – one ruling class and one worker class, which is divided in segmented groups providing different goods and services according to three techniques, A, B, and C. A third society is divided in three strata: the ruling aristocracy, a middle class and a third class composed by slaves, adopting the same three techniques of the second society.

If we focus only on the cultural level of selection, there would be no difference between the second and the third societies, and the only difference between them and the first one would be the fact that the former adopts the technique of production A, while the other two adopt more techniques (B and C). However, the third society can be more (or less) productive precisely because it adopts a different social structure, and not due to the specific cultural trait produced within its own organization. As a matter of fact, the same cultural traits can have a different impact in distinct societal structures. By conflating culture and structure, the proposed model fails to see this point. But its relevance rests on offering a selectionist explanation concerning the evolution of stratified societies, by emphasizing their role in fostering division of labor, a necessary precondition for population growth and, later historically, for the evolution of functional differentiation.

The transition to stratified societies also implied changes in the legal structure. Archaic law was legitimized on the principles of kinship, retribution and reciprocity – exactly the principles one should expect to inform early human societies given our innate social psychology.<sup>944</sup> These princi-

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942 See Henrich, J. and Boyd, R. (2008). Division of labor, Economic Specialization, and the Evolution of Social Stratification. p. 722.

943 See, e.g., Hodgson, G. M. and Knudsen, T. (2010). Darwin's Conjecture. p. 194.

944 Luhmann, N. (2014). A Sociological Theory of Law. pp. 116-123.

ples do not determine the content of law, but inform its concrete application. For instance, blood revenge and the already mentioned principle of social substitutability are ubiquitous in archaic societies, no matter how different their customs and traditions are – precisely because these institutions protect kinship relationships by the means of retribution.

In Luhmann's account, legal history shows how "law itself becomes independent at the societal level by increasing differentiation of cognitive and normative expectations and moves from more concrete to the more abstract (more varied) ideas in its structure of meaning."<sup>945</sup> Archaic (Chthonic) law, in this sense, is a concrete law, fixed in the tribal traditions which are conceived of as the entire universal order, which binds gods and mortals. There is little – if any – differentiation between law, politics and religion. As a result, no other possibilities are conceivable, for not even the gods are allowed to change the law. "The Law of the tribe is experienced as the only possible one, simply as law."<sup>946</sup> The low degree of abstraction entails a lack of alternatives, forbidding analogical reasoning to similar cases. Legal decisions are only the responses to concrete violations in the present, as a result of law maintenance, and not "as enlightening a disputed past nor as selection of a preferred future."<sup>947</sup>

These features constitute also many of ancient law's dysfunctions, since the blood feuds impose high social costs insofar as any normative violation can be punished by severe sanctions. Only when law became more elaborated and open to abstraction newer and more refined forms of sanctioning could have been available.<sup>948</sup> Some archaic societies have partially overcome these dysfunctions, paving the way to new legal procedures on which further complexity could be structured. Luhmann highlights some crucial developments.<sup>949</sup> The first event is the institution of a time delay between the punishable act and the retribution, forbidding the immediate execution of the sentence. The time delay between the act and the legal decision creates room for argumentation about the case and, as a result, the legal ruling can be slightly detached from the concrete case, gaining in abstractness.

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945 In Luhmann, N. (2014). *A Sociological Theory of Law*. p. 109.

946 In Luhmann, N. (2014). *A Sociological Theory of Law*. p. 118.

947 In Luhmann, N. (2014). *A Sociological Theory of Law*. p. 120.

948 Luhmann, N. (2014). *A Sociological Theory of Law*. p. 123.

949 See Luhmann, N. (2014). *A Sociological Theory of Law*. pp. 124-129.

Abstraction is also gained in the magical formalization and ritualization characteristic of many late archaic laws.<sup>950</sup> Rituals are situationally independent and, as such, can be transferred from one concrete case to another. According to Luhmann, this is a first step toward the institutionalization of a procedural system, capable of coping with a wide range of legal problems without relying on the tribal structure of ancient societies.<sup>951</sup>

"The independent formation of law toward higher abstraction and complexity in the further course of development, then, depends to a large extent on the fact that rituals aid transmission, but do not become the only function bearer, nor the only principle of differentiating out law and thus concretely essential, but that their essentiality can be diminished again with the aid of politically created institutions – a condition which could be fulfilled in the ancient Mediterranean and be repeated in the transition to modern times."<sup>952</sup>

Being stratified and consequently possessing some division of labor, late archaic societies enjoyed relative economic development – a circumstance that brought novel problems.<sup>953</sup> Legal conflicts between people belonging to different strata and problems of credit and insurance in the incipient money economy arise, and the legal principles based on kinship, reciprocity and retribution become obsolete, demanding a more flexible system of conflict resolution.<sup>954</sup> Differentiation also affects law. Albeit still linked to a religious understanding of the world and largely enforced by political institutions, the differentiation of political-administrative roles is responsible for making and enforcing collective decisions.

These developments, in Luhmann's perspective, have established the preconditions upon which further legal evolution operated. A small fraction of archaic societies in which these preconditions had been present developed their social institutions even further, building a novel type of stratified society, designated by him as pre-modern high cultures – a label that

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950 See Luhmann, N. (2014). *A Sociological Theory of Law*. p. 125.

951 In Luhmann's own words: "In this way court procedures with their formalisms and incalculable risks could at first still fit into the framework of pressures which, in many cases, effected a peaceful resolution of conflict as it did in archaic societies, and could also contribute to removing law structurally from dependency upon the structure of tribal associations." In Luhmann, N. (2014). *A Sociological Theory of Law*. p. 125.

952 In Luhmann, N. (2014). *A Sociological Theory of Law*. p. 125.

953 See Turner, J. H. (2010a). *Theoretical Principles of Sociology*, Volume 1. p. 225.

954 See Luhmann, N. (2014). *A Sociological Theory of Law*. p. 125.

encompasses societies as different as pre-modern China, India, Islam, Greece, Rome and Medieval Europe.<sup>955</sup>

These societies displayed incomplete functional differentiation, showing institutional domains pertaining to different social systems, but still conceived of as a part of the traditional pattern of life.<sup>956</sup> In the religious domain, there are temples and priests who begin to be concerned with the interpretation of religion itself, and not only of events as before. There are also markets serving the economic needs of non-related individuals, and political rule, essential for the maintenance of political-administrative order.<sup>957</sup> In Luhmann's analysis, these developments do not mean complete functional differentiation because most of the population still lives "in the old kinship order," spread in villages "outside the towns and relatively independently and uninfluenced by them, apart from the occasional occupational association in towns."<sup>958</sup> Pre-modern high-cultures, then, are built upon a clear distinction between center and periphery, maintained in the different attributions assigned to the towns (centers) and the rural areas (peripheries).<sup>959</sup> One of the major consequences of this distinction lies on the amplification of stratification in comparison with archaic societies. The elite, concentrated in a few noble families, lives in the cities, reproducing the stratified structure of the society. Within the cities, there is a stratified division between the noble and the common people, but both, in a sense, are in the center. The rural areas, on the other hand, are usually associated to the periphery, and typically display a segmentary pattern.<sup>960</sup>

Another common feature of the pre-modern high culture's legal system lies in the fact that, although they can detach the political and religious content from the kinship principles of the tribal society, they still cannot separate law and religion. Law is religiously determined.<sup>961</sup> This is an important point, in view of the fact that religion is the basis of legitimation

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955 See Luhmann, N. (2014). *A Sociological Theory of Law*. p. 129. In the same vein, acknowledging the differential status of these societies, Parsons designated them as historic intermediate empires. See, on the subject, Parsons, T. (1966). *Societies: Evolutionary and Comparative Perspectives*. pp. 69-94.

956 Luhmann, N. (2014). *A Sociological Theory of Law*. p. 129.

957 Luhmann, N. (2014). *A Sociological Theory of Law*. p. 129.

958 In Luhmann, N. (2014). *A Sociological Theory of Law*. p. 129.

959 See Luhmann, N. (2013). *Theory of Society*. pp. 42-50.

960 See Luhmann, N. (2013). *Theory of Society*. p. 45; Corsi, G., Esposito, E. and Baraldi, C. (1996). *Glosario sobre la Teoría Social de Niklas Luhmann* (Pérez and Villalobos, Trans.). México, D.F.: Universidad Iberoamericana. p. 79; Moeller, H.-G. (2006). *Luhmann Explained: from Souls to Systems*. pp. 42-43.

961 Luhmann, N. (2014). *A Sociological Theory of Law*. p. 130.

within these societies. For sure, these societies could not hold themselves solely on the basis of sharing a single culture, since they demanded a strong administration. Nonetheless, the bureaucratic structure demanded the legitimacy provided by religion in order to impose its rulings on the common people. "The bureaucracy, which regarded itself officially as the center, formed the visible structure of the empire and was responsible for its religious and ethical self-presentation. The exercise of political power and of religion was not to be separated."<sup>962</sup>

The success of pre-modern high cultures resulted from their ability of keeping a large population integrated in vast territories, such as those comprised by China, India, the Islamic Empires and Rome.<sup>963</sup> Part of this success can be attributed to the fact that most of them could integrate a large part of their population under a single homogenous cultural system, based on religion. It is not a surprise, then, Parsons' affirmation that: "[w]ith the possible and partial exception of China, they have all been deeply involved with one of the so-called 'world religions' in a sense not applicable to any archaic society."<sup>964</sup>

In the American sociologist's perspective, these societies attained a major breakthrough that enabled them to cross a threshold to include vast populations in large territories. The constitutive symbolism of their religions achieved a higher degree of generalization, allowing them to include under the same cultural system both the higher and the lower strata members. In a sense, then, the cultural system had to adapt to the novel stratified structure, describing in its own (religious) terms the hierarchical structure of society. However, our innate moral grammar probably reacted to the novel religious description of the social order by triggering our parochial biases and differentiating between friends and enemies according to the stratum they belonged to. As a result, individuals were more prone to cooperate and mate with other members of the same strata they belonged to, culminating in the characteristic endogamy of stratified societies.

Another feature of law deriving from its functional partial undifferentiation from religion consists in the primacy of politics. Although the sacred law legitimizes the exercise of power, and law as such is not considered as disposable for not being intentionally modifiable by the ruler, there is no impossible legal restriction on the sovereign. As Marcelo Neves says, "[in]

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962 See Luhmann, N. (2013). *Theory of Society*. p. 48.

963 Parsons, T. (1966). *Societies: Evolutionary and Comparative Perspectives*. p. 69.

964 Parsons, T. (1966). *Societies: Evolutionary and Comparative Perspectives*. p. 69.

this context it is possible to speak of the subordination of law to power. So-called 'sacred law' is best thought of as an epiphenomenon of power legitimated by religion-based morality."<sup>965</sup> By no means the subordination of law to politics implies it has fulfilled less any of the mentioned functions of regulating the structure of society and stabilizing normative expectations. Although the ruler could in principle intervene and dispose of law as a result of their privileged status position, there is no doubt that they were also subjected to many cultural and structural-normative constraints embedded in social semantics. The point is that there was no preexisting *de facto* or legal restriction imposed on the sovereign.

It is important to notice that, unlike the other pre-modern high cultures, Roman civilization achieved an impressive degree of differentiation between law/politics and religion.<sup>966</sup> Islam, China and India were tightly undifferentiated societies, keeping their unity under homogenous religions – respectively, Islam, Confucianism and Hinduism.<sup>967</sup> Unlike them, the Roman Empire incorporated many peoples who did not share the same faith during its process of territorial expansion, and, nonetheless, was capable of maintaining a relatively stable society.

According to Parsons, much of Rome's success can be explained not by religion, but by some features of its legal system – the expanded assignment of citizenship and the inclusive role of the concept of *jus gentium*. Religion in Rome was rather parochial and could not provide a strong foundation to legitimize its administrative structure upon a heterogeneous population, but the Romans found on Greek Stoicism a philosophical workaround that proved useful to provide such legitimation. Being a universalistic philosophy, it allowed the systemization of Roman law along a general normative system of natural law principles applicable to all men.

As a result, Rome relaxed its stratified order, extending citizenship both in its center, to plebeians, and in its periphery, to the conquered peoples of the Empire.<sup>968</sup> To be sure, Rome remained a stratified society, insofar as

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965 In Neves, M. (2013). Transconstitutionalism. p. 10.

966 See Parsons, T. (1966). *Societies: Evolutionary and Comparative Perspectives*. pp. 86-89; Neves, M. (2013). Transconstitutionalism. p. 10.

967 Parsons, T. (1966). *Societies: Evolutionary and Comparative Perspectives*. pp. 71-86.

968 As Parsons states: "A very important means of extension was the grant of citizenship to all men, whatever their origins, who had honorably served a six-year term in the legions. This was a crucial process of democratization, for it cut across the internal stratification of the subsocieties involved." In Parsons, T. (1966). *Societies: Evolutionary and Comparative Perspectives*. p. 88.

many powers could be wielded only by patricians; but the plebeians had a considerable higher status than the common peoples among Rome's counterparts in other pre-modern high cultures. An example of this is *Lex Canuleia*, which allowed marriage between plebeians and patricians – forbidding the endogamic stratum division characteristic of stratified societies.<sup>969</sup> As a result, Roman cohesion among the social strata was higher than in other high cultures.<sup>970</sup> The *jus gentium*, which regulated the relationships between Roman authorities and non-citizens under Roman rule, allowed for the legal integration of the whole population. This was, indeed, an impressive achievement, considering the amount of religious and cultural diversity present within the Roman Empire. Parsons described this remarkable accomplishment in this passage:

"This was by far the most highly developed, largely secular system of law that evolved in any society until modern times. Under its governmental and legal system, Roman society became the most cosmopolitan and individualistic up to its time. Both persons and property enjoyed relatively free mobility throughout the Empire. An elaborate money, credit, and markets institutional complex encouraged the development of relatively non-political economic enterprise. In the more cultural spheres, given the ethnic and cultural heterogeneity of the population, there was an immense range of religious and cultural freedom and mobility."<sup>971</sup>

However, Rome could not hold as a stable empire for long. Soon the difficulties resulting from holding together so many cultural and religious societies under the Roman rule became apparent. Rome could not develop its own secular cosmology: "The 'Imperial cult' was relatively weak (....) the Empire had developed no adequate alternative for meaningfully articulating the moral basis of the legal-political order with the ultimate grounding of the system of moral commitments."<sup>972</sup> As a result, Rome lost its social

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969 Pieris, R. (1952). Caste, Ethos, and Social Equilibrium. *Social Forces*, 30(4), 409-415.

970 See Turchin, P. (2007). *War and Peace and War: the Rise and Fall of Empires*. New York: Plume. p. 128.

971 In Parsons, T. (1966). *Societies: Evolutionary and Comparative Perspectives*. pp. 88-89.

972 In Parsons, T. (1966). *Societies: Evolutionary and Comparative Perspectives*. p. 89. Peter Turchin offers a similar explanation to the decline of the Roman Empire in Turchin, P. (2007). *War and Peace and War: the Rise and Fall of Empires*.

cohesiveness, being subjected to invasion by more cohesive groups.<sup>973</sup> In addition to the lack of cultural integration, the economic dependence on slavery proved an unsolvable inefficiency. Roman economy became unsustainable after the end of territorial expansion, since the slave population was recruited from war prisoners. With peace, the supply of slaves was radically reduced.<sup>974</sup> The Roman case is an outstanding example of law fulfilling both the function of being a structure of society and of sustaining cooperation in both its meso-level units and at the individual level. By extending membership to others, Roman legal culture signaled that all members of the Roman community were to be considered as in-groups, relegating the label of outsiders to all those barbarians outside the Roman commonwealth.

From the standpoint of Richerson & Boyd's approach, this is a huge example of how social institutions blindly diverted elements of our social psychology in order to support and expand cooperation among a diversity of peoples. In a sense, Rome almost discovered institutionally – albeit not described philosophically in these terms, a principle of separation between law and religion, insofar as it imposed a government secular structure over many cultural and religious peoples. This institutional framework legitimized law on secular symbols, allowing our psychology to embrace a secular unified symbolic structure while maintaining a second-order religiously divided society. As we will see in the next chapter, this is one of the

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973 See Turchin, P. (2007). *War and Peace and War: the Rise and Fall of Empires*. p. 147.

974 Weber's analysis is precise on this point: "The ancient slave estate devours human beings as the modern blast-furnace devours coal. A slave market and its regular and ample supply with human material is the indispensable presupposition of slave barracks producing for the market. (...) When we are being asked from which event we should date the - first latent, soon manifest - decline of Roman power and civilization, it is difficult, at least for a German, not to think of the battle in the Forest of Teutoburg. There is, indeed, a kernel of truth in this popular conception, although it seems to be contradicted by the obvious facts which show the Roman Empire at the zenith of its power at the time of Trajan. To be sure, the battle itself was not decisive - a reverse like this occurs in every war of expansion waged against barbarians; decisive was the aftermath: the suspension of offensive warfare on the Rhine by Tiberius. This brought to an end the expansive tendencies of the Roman Empire. With the internal and in the main also external pacification of the area of ancient civilization, the regular supply of the slave-markets with human cattle begins to shrink. As a result of this, an immense *acute* scarcity of labor seems to have developed already at the time of Tiberius." In Weber, M. (1950). *The Social Causes of the Decay of Ancient Civilization*. *The Journal of General Education*, 5(1), 75-88 .



keys to understanding the inclusionary logic of constitutionalism. Nonetheless, law was still determined on a religious basis, being still immutable and considered part of natural law; nonetheless, its adoption of a more universalistic framework enabled the construction of a more inclusive system. Roman legal institutions also supported a huge administrative system of government, fulfilling the macro-dynamic function of law by maintaining a cohesive system of roles composing the structure of Roman society.

Law in pre-modern high cultures is also more abstract than in ancient societies. This is one result of the development of more complex procedural systems and specifically juridical roles (judges and courts) to whom are assigned the duty to decide legal issues.<sup>975</sup> The judicial process arises as a particular interaction system, an initial step toward the autonomization of law as a social system. When legal procedures are established, law becomes the result of a decision as the outcome of a process, and not as the result of an individual will acknowledging a violation. Being the result of a procedure, law becomes more abstract and objective.<sup>976</sup>

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Among other still slightly undifferentiated social systems such as politics and economy, law succeeded in maintaining the structure of stratified societies and fostering cooperation in a more complex societal framework. Stratification evolved because it conferred evolutionary advantages vis-à-vis egalitarian bands and segmentary tribes, allowing them to develop sociological organizations that never before had been possible.

However, we do not live in stratified societies anymore. Even if there is a huge amount of inequality in contemporary Western constitutional democracies, nothing like the endogamic stratum division existing in Ancient Egypt, China, India or even Rome still endures in these societies. Economic inequality and poverty are a problem in our contemporary condition precisely because we can see it as a normative issue; we understand that it does not conform well to the standards of a full constitutional democracy. In those ancient civilizations, inequality could never be conceived of in these terms because it was inbuilt within the very hierarchical structure of a stratified society and, as such, inequality among different

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975 Luhmann, N. (2014). *A Sociological Theory of Law*. p. 134.

976 Luhmann, N. (2014). *A Sociological Theory of Law*. p. 137-138.

strata was the given normative premise. As a result, inequality could not be seen as a normative issue at all.

In a certain sense, then, we can say that another shift occurred in human history, bringing egalitarianism back to the game. And, again, acknowledging this shift comes with some perplexity, caused by the following perception: As I have argued based on systems theory sociology, stratified societies evolved precisely because they were able to solve public good problems better than egalitarian bands and segmented tribes, by enhancing their efficiency through the division of labor. Law played an essential role in this process, both because it stabilized the normative expectations toward the stratified societal division, maintaining the hierarchical structure of roles stable, and for enhancing the possibilities of cooperation through the means of normative enforcement and symbolic marking, by assigning different legal status to members of distinct strata. Acknowledging the efficiency of stratification might seem odd to a contemporary reader: after all, if stratification is so efficient, why don't we live in stratified societies anymore? Why has egalitarianism stricken back?

In a paper discussing the issue of equality in modern societies, Talcott Parsons advances the thesis that the shift back to egalitarianism occurred, in part, as a result of the constitutional Revolutions which occurred in the end of the 18th century.<sup>977</sup> The system of fundamental rights, along with an inclusive conception of citizenship, is the core of a novel institutional design that, for sure, explains at least partially the return of egalitarianism as a sociological possibility.

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977 In Parsons's own words: "Sociological interest has tended to focus on inequality and its forms, causes, and justifications. There has been, however, for several centuries now, a trend to the institutionalization of continually extending bases of equality. This came to an important partial culmination in the eighteenth century, which happened to be the founding period of the politically independent American variant of Western society. Such cultural influences as the conceptions of natural rights or the rights of man had a profound effect on the normative definition of the nature of the new society and received a particularly important embodiment in the Bill of Rights, which was built into the United States Constitution as the first ten amendments. The egalitarian focus of this system of "rights" was unmistakable. It was also, however, closely associated with the nearly contemporary emphases of the French Revolution on the concept of citizenship. In the United States this could, to a degree impossible in the Europe of that time, be dissociated from religious and ethnic bases of the solidarity of societal communities, since the pattern of separation of church and state and denominational pluralism in the religious sphere was already well launched." In Parsons, T. (1970). Equality and Inequality in Modern Society, or Social Stratification Revisited. *Sociological Inquiry*, 40, 13–72.

In the next chapter, I will build on Parsons' insight in order to dissipate the above-mentioned perplexity. Constitutionalism is part of an evolutionary explanation of the return of egalitarianism in human societies. Nonetheless, as we will see, this "return of egalitarianism" needs to be better qualified. Nothing like the egalitarian bands of the Pleistocene has returned; constitutionalism is – obviously – not a return to the kind of society we used to live 12,000 years ago. As a result, the "return" to egalitarianism is not a return at all; equality is to be understood in totally different terms. As I will argue, however, much of the social logic explaining the egalitarian bands of the Pleistocene is also beneath the political institution of modern democracies – embedded, evidently, in a much more complex societal environment. Being functionally differentiated, modern societies are far more complex than any societal type discussed thus far and, in order to understand their evolution, we need to understand the evolutionary advantages they possess in comparison to stratified societies. And, as I will claim, possessing a constitutional legal and political structure is one of these advantages. Constitutionalism is an evolutionary adaptation.



## 5. Constitutionalism as an Evolved Adaptation

It is undeniable that modern constitutional democracies are far more egalitarian than the aforementioned stratified societies that dominated the world in the last 5,000 years. Although poverty and inequality exist today, they are usually considered political and economic problems to be addressed (maybe libertarian philosophers would not agree with this statement), and not an inherited natural feature of our world. We are right to feel scandalized about the huge and rising inequality in contemporary democracies, but things were far worse in stratified societies.

Even a country like Brazil, known for being an unequal country for contemporary standards, would be considered an egalitarian paradise when compared with medieval societies. With its Gini coefficient of 53.3, albeit being a shame when compared to the United States (41.5), Germany (31.7) or Norway (27.5),<sup>978</sup> it would still be considered low for the standards of the Middle Ages. The economist Gregory Clark estimates that between the 13th century and the 16th century, cities like London, Paris and Florence had a Gini coefficient varying between 75 and 83, indicating a vast inequality and income concentration – an index worse than contemporary Haiti, Namibia and Sierra Leone, which account for some of the worst global examples of inequality.<sup>979</sup> And not only that. By that time, only a small fraction of the population could participate in the political world as active members of the commonwealth. During the Middle Ages, most

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978 See the World Bank data estimate at <http://data.worldbank.org/indicator/SI.PO.V.GINI>. Access on 6 jul. 2019.

979 Clark, G. (2008). *A Farewell to Alms*. Princeton: Princeton University Press. p. 281. Similarly, Dave Postles states the high inequality of English medieval cities. According to him, in 1524-5, English cities displayed a Gini coefficient between 0.54 (Shropshire) and an extraordinary 0.85 in Dorchester. In Postles, D. (2014). *Microcynicon: Aspects of Early-modern England*. In Hertfordshire (Ed.). Loughborough. pp. 25-33. Using a different indicator, the *inequality extraction ratio*, Milanovic et al. argue that pre-industrial inequality was indeed much higher than in contemporary societies. According to them, "three-quarters of maximum feasible inequality was actually 'extracted' by the top income groups in our pre-industrial sample. The countries with the lowest ratios are 1924 Java and 1811 Kingdom of Naples with extraction ratios of 48% and 54%, respectively." In Milanovic, B., Lindert, P. H. and Williamson, J. G. (2010). Pre-Industrial Inequality. *The Economic Journal*, 121, 255-272.

men and women were excluded from political life, had almost no enforceable rights and barely no security to even participate in economic life. There were no worker's rights, no women's rights, no individual rights at all.

A displaced hunter-gatherer from the Pleistocene, accustomed to keep the alpha male constantly monitored, would not understand how life has got so unequal in only 100 centuries. Of course, he would not feel at home in contemporary democracies either. Maybe he would acknowledge that at least we have means to control political bullies, that political power is spread through the whole society as rights of political participation, and that some economic redistributive policies grant a similar effect to meat sharing in primitive societies. However, he would not understand most of our social arrangements, specially how we manage to live in religiously divided societies and the complexity of our social life. A hypothetical hunter-gatherer time traveler coming from the Pleistocene would definitely be amazed by how we, moderns (or post-moderns?), have managed to keep our societies stable in such extravagant conditions.

The fact is that, compared to stratified empires, egalitarianism stroke back in modern democracies, eroding the hierarchical structure typical of pre-modern high-culture societies, as a result of the evolution of a new form of societal structure.

As discussed, history produced only a few forms of social differentiation, and pre-modern societies were subjected to three of them. The first one is segmentary differentiation, which is defined as the equal differentiation of social subsystems on the basis of descent or communal living of residential communities, or a combination of both. The second form of differentiation, typical of tribal societies segmented in clans, is the center-periphery, which allows for dissimilarity and transcends the principle of segmentation because among the multiplicity of segments, the tribal structure differentiates a center, where one eminent household (segment) concentrates some power and wealth, relegating the others to the periphery. The central segment, however, is considered as the first among equals, and not one of a different kind. Unlike center-periphery differentiation, however, stratified differentiation accepts differences in rank between distinct subsystems, and ascribes vertical inequality according to the rank/status in a hierarchical system, such as the Indian caste system or medieval Europe.<sup>980</sup>

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980 See Luhmann, N. (2013). *Theory of Society*. pp. 12-13. See also Moeller, H.-G. (2006). *Luhmann Explained: from Souls to Systems*. pp. 42-44.

Modernity is the result of structural change in the form of societal differentiation, replacing medieval European stratified differentiation by functional differentiation – a process that took place between the 12th and 18th centuries.<sup>981</sup> Functional differentiation is based on the simultaneous application of the equal/unequal distinction to social systems. A functionally differentiated society is composed of many systems (law, politics, economy, education, religion, science), and each of them is unequal because each system performs different functions and has different codes, programs, media, structures and elements;<sup>982</sup> albeit being also equal in the sense that they are not ranked hierarchically vis-à-vis each other. They are equal between themselves (they have equal relevance), but perform different functions (and as a result are different). Law is no more important to the societal structure than economy or politics, nor is science more central to society than any other social system. This is, from a systems theory perspective, one major source of criticism against Marxism,<sup>983</sup> which ascribed functional primacy to the economic system vis-à-vis other social systems. The difference between social systems results only from performing different functions and not from a hierarchy of ranks. This is a complete subversion of stratified societies, where there was a functional subordination of law to political power, legitimated by a religion-based morality.

"In this context it is possible to speak of the subordination of law to power. So-called 'sacred law' is best thought of as an epiphenomenon of power legitimated by religion-based morality. Subordination of law to political power in a social formation where power is at the centre of society leads to an asymmetrical relationship between higher and lower power, or between the sovereign and his subjects."<sup>984</sup>

It is important to highlight that the form of differentiation characteristic of a given society is not to be confused with a form of society. The above-

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981 See Moeller, H.-G. (2006). *Luhmann Explained: from Souls to Systems*. p. 45 and, generally, Brunkhorst, H. (2014). *Critical Theory of Legal Revolutions: Evolutionary Perspectives*. New York: Bloomsbury.

982 These terms must be understood within the specific framework of functionalist sociology, which adopts cybernetics and autopoiesis theory as its departure points. Each system reproduces itself according to its own code. For instance, "the code of science is true/false, the code of politics is government/opposition, and the code of law is legal/illegal." See Moeller, H.-G. (2006). *Luhmann Explained: from Souls to Systems*. p. 111.

983 See Luhmann, N. (1982). *The Differentiation of Society*. p. 341.

984 See Neves, M. (2013). *Transconstitutionalism*. p. 10.

mentioned process of functional differentiation does not entail that modernity and the resulting functional differentiation replaced segmentation, the distinction between center and periphery and stratification. As Luhmann says in this context, "reality, of course, is much more complex."<sup>985</sup>

Societies are not either segmented, stratified or functionally differentiated; instead, they are subjected to one of these principles as a *primary* scheme of differentiation, which reorganizes society and structures how it adopts other forms of differentiation. Stratified societies use segmentation in order to organize each *stratum* internally, in the form of equal clans or tribes. As I have discussed in chapter 4, even stratified societies had some incipient functional differentiation of the political system, which concentrated power in the hands of a hierarchically ranked faction. Functionally differentiated societies also use stratification principles within functionally specialized organizations, such as businesses (CEOs, board of directors and employees), churches (religious leaders and the masses of believers), or even in political and judicial bureaucracies.<sup>986</sup> Nonetheless, the way a functionally differentiated society uses stratification is very different. Unlike stratified societies, it ascribes stratification only to subsystems internal to the social system, channeling access to specific roles in certain organizations. In a religious organization, for instance, it is to be admitted that a religious leader like the Pope has a specific rank ascribed to him as a result of his status in the Catholic religion.

From the standpoint of the societal system, however, there is no specific status ascribed to no one. Everyone is, in principle, normatively allowed to participate in communication in every social system. No one is to be excluded from participation in communication *a priori*, even if they do not have the right to participate as a highly ranked member of a specific social system. Also, no one that is highly ranked in a specific social subsystem is to be considered, *for that sole reason*, a highly ranked person in another social subsystem. The CEO of a huge business company (economic system) is not, *for that sole reason*, a politician or even has any influence over the political system.<sup>987</sup> This is a normative assumption inbuilt within a functionally differentiated society that can be only sustained because every person has

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985 In Luhmann, N. (1982). *The Differentiation of Society*. p. 242.

986 See Luhmann, N. (1982). *The Differentiation of Society*. p. 243.

987 In Luhmann's own words: "Stratification is also compatible with functional differentiation; certainly at the level of special roles, but also of role systems - for example, bureaucracies, religious temples, or labor organizations. It channels ac-



the same *legal status* and, as such, law is assumed to perform a specific function in the maintenance of the normative conditions for functional differentiation.

The functional differentiation of society occurred as the result of contingent transformations that led to the evolutionary selection of institutions, roles and structures that furthered increasingly differentiated functions. Before modernity, one could not conceive of functionally differentiated systems. Politics, law, medicine and religion were entangled in a single lifeworld, and there were no differentiated systems. Society was conceived of as a system that encompassed all feasible forms of communication – a central concept in systems theory. Communication is held as a combination of three components: information (a selection from a repertoire of possibilities), utterance (the form and reason of communication), and understanding (what the receiver of the utterance holds as the transferred information).<sup>988</sup> Before modernity, communication was performed through a barely undifferentiated background of assumptions. Law was entangled with morality, custom, politics and religion in a broad communicative framework. In this sense, pre-modern legal theory developed over moral foundations: morality, via the virtue of justice, was the main feature and aim of legal institutions, and was based on a natural law account of institutional legitimacy.<sup>989</sup>

In the following sections, I will address the process of functional differentiation as a result of a multilevel selection process which resulted in the selection of constitutional states as Darwinian individuals (Peter Godfrey-Smith). The social conditions of medieval and modern Europe were unique in comparison to stratified societies and, as a result of evolutionary pressures coming both from *bottom-up* processes acting upon individuals and organizations on meso-dynamic and micro-dynamic levels (Turner), and from *top-down* processes coming from the interaction between different state-level organizations and the pressures coming from the international law. The result of this process was the constitutional society – and

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cess to these roles. It approaches its limits, however, if subsystems define their clientele in universalistic terms: if every person (whether nobleman or commoner, Christian, Jewish or Muslim, infant or adult) has the same legal status, if 'the public' is provided with a political function as an electorate, if every individual is acknowledged as choosing or not choosing a religious commitment, and if everybody given the necessary resources can buy anything and pursue any occupation." In Luhmann, N. (1982). *The Differentiation of Society*. p. 243.

988 See Luhmann, N. (1995a). *Social Systems*. pp. 150-152.

989 See Luhmann, N. (2004). *Law as a Social System*. pp. 76-77.

constitutions were selected precisely because they are a legal and political instrument able to simultaneously (i) keep functionally differentiated societies stable, organizing cooperation in a level never seen before in natural (and social) history; (ii) adapt to our tribal instincts in a way that fosters the legitimacy of constitutional democracies; and (iii) maintain a communicative channel with other societies via international law, constituting another societal level, the world society.<sup>990</sup>

The novel societal structure, however, turned out as a feasible possibility in a context where the foundations of traditional legitimacy were completely eroded. Unlike pre-modern empires, modern societies are not based on the assumption of a shared symbolic religious-based world that legitimizes social structures and sustain the social basis of cooperation. Acknowledging this point is a problematic premise for the theory of cooperation advanced in the previous chapters, since I sustained that gene-culture coevolution models support the claim that, inbuilt within our psychology, is a set of tribal instincts that makes us prone to cooperate with those who share the same symbolic beliefs as us (symbolic marking). How does this psychology cope with the modern framework of functionally differentiated societies, where social integration is not granted anymore by a single religious belief?

In this last chapter, I want to address these issues. How could our contemporary social structures have managed to reverse the inegalitarian trend of stratified societies? And how could so complex societies be stabilized? My claim is that constitutions played a fundamental role in both processes, insofar as constitutionalism can be understood as an evolutionary adaptation that enables social systems to perform their functions autopoietically in differentiated societies such as modern ones. This claim is not new in sociology,<sup>991</sup> but I advance further in at least two points: (i) I propose a multilevel perspective on the evolution of constitutionalism that (ii) takes into account the role of human psychology in the stabilization of the political frameworks structured by constitutions. By no means I advance a claim against sociology. These proposals should be better understood as a modular complement to sociological theory in order to show that psychol-

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990 See Luhmann, N. (2006). La Sociedad Mundial. *Estudios Sociológicos*, 24(72), 547-568. My argument, as will become clear, is slightly different from Luhmann's point, however.

991 See Luhmann, N. (1996). La Costituzione come Acquisizione Evolutiva. In Zagrebelsky, Portinaro and Luther (Eds.), *Il Futuro della Costituzione* (pp. 129-166). Torino: Einaudi; Brunkhorst, H. (2014). *Critical Theory of Legal Revolutions: Evolutionary Perspectives*; Thornhill, C. (2011). *A Sociology of Constitutions*.

ogy, sociology and constitutional theory could gain a lot by working together.

In order to achieve this purpose, I divided the chapter in five parts. The first part aims to provide a sociological account on the dissolution of stratification and the emergence of modern and functionally differentiated societies. In order to do so, I will rely mostly on Hauke Brunkhorst's recent book, *Critical Theory of Legal Revolutions*, which is a major attempt to develop an evolutionary theory of legal history from the Middle Age onwards, specially focusing on the origins of constitutionalism.

The second and third sections concentrate on the evolution of constitutionalism within an evolutionary multilevel selection perspective in order to explain the evolution of constitutionalism: functional differentiation has brought new bottom-up and top-down selective pressures that led to the evolution of political states, constitutions as state-level structures and rights as micro-dynamic and meso-dynamic level (individuals and organizations) normative constraints that impose reciprocal pressures on states to reassure and maintain functional differentiation (at the macro-dynamic level). An important point to be discussed is how constitutions are an adaptation that stabilizes a novel Darwinian individual, which I call *constitutional society*.

The fourth section of the chapter is concentrated on the evolution of constitutionalism and the above-mentioned questions: how did constitutions and the new sociological structure manage to bring egalitarianism back to the game of human sociality? The multilevel selection evolutionary explanation devised in the first sections will be invoked to argue that constitutionalism developed an egalitarian sociability as a mean to ensure the autopoiesis of all social systems.

The fifth section will be focused on the relationship between constitutions and human psychology. The argument to be developed in this section is that constitutions could work in order to stabilize functionally differentiated societies not only because they are a societal adaptation, but also because they are founded on normative premises that evoke instincts nested in our evolved mind. This is a double-edged sword, as we will see. On one hand, the egalitarian Kantian mindset (Hauke) of constitutionalism conjures the anti-hierarchical dispositions of our Pleistocene ancestors' minds and the pretension to live in normatively homogeneous groups. However, on the other hand, certain social conditions can trigger some tribal instincts such as the ethnocentric bias that triggers the disposition to differentiate between friends and enemies and subvert the inclusionary constitutional logic. The ambivalence and plasticity of the human mind,

however, is necessary to sustain constitutional legitimacy in contexts of cultural pluralism. How to adjust all these demands in order to explain how the stability of contemporary constitutional democracies was possible?

5.1. *The Sociological Preconditions of the Constitutional State: Hauke Brunkhorst's Critical Theory of Legal Revolutions*

The constitutional state evolved in a very specific sociocultural environment, as a result of the replacement of the stratified differentiation typical of pre-modern high cultures by functional differentiation. This process began in Medieval Europe and, in order to understand the function performed by constitutions, we must understand the conditions in which they emerged and to which they responded.

Hauke Brunkhorst, in his *Critical Theory of Legal Revolutions: Evolutionary Perspectives*, advances the claim that some events occurring in the Middle Ages and in early Modernity constrained the evolutionary path of modern societies by imposing some normative constraints on social evolution. Based on the Punctuated Equilibrium thesis advanced by Gould,<sup>992</sup> he argues that events like the Papal Revolution of the 11th century and the Protestant Revolution of the 17th century channeled evolutionary change, blocking some evolutionary paths and opening others. In his perspective, these events are not to be understood as incremental evolution producing adaptive capacities through natural selection, but as punctuational bursts that "does not lead to better adaptation, but to new constraints of adaptation."<sup>993</sup>

I do not think Brunkhorst is necessarily right in his claim that the normative constraints imposed by events such as the above-mentioned ones are cases of punctuational bursts and not of gradual evolutionary change. As even Gould acknowledges, "natural selection does not require or imply this degree of geological sloth and smoothness"<sup>994</sup>. In addition, sociocul-

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992 See Gould, S. J. (2007). *Punctuated Equilibrium*. Revolutionary Change Theories: A Multilevel Exploration of the Punctuated Equilibrium Paradigm: The Belknap Press of Harvard University Press; Gould, S. J. (1986). Punctuated Equilibrium: Empirical Response. *Science, New Series*, 232(4749).

993 See Brunkhorst, H. (2014). *Critical Theory of Legal Revolutions: Evolutionary Perspectives*. pp. 33-34.

994 In Gould, S. J. (2007). *Punctuated Equilibrium*. p. 27.

tural evolution is much faster than biological evolution,<sup>995</sup> and considering the pressures deriving from the given sociological conditions, there is no reason to think that it could not occur through natural selection or cultural, social or structural group selection. Besides that, there is no reason to assume that only punctuational bursts could impose constraints on evolutionary path.<sup>996</sup> Cumulative natural selection also imposes constraints on further evolution, given the fact that evolution works with the materials at its disposal and, as a result, the present state of an evolutionary system already conditions further evolution. As François Jacob states, natural selection does what it can "with the materials at its disposal."<sup>997</sup>

Brunkhorst's thesis is backed by what he sees as two lines of evidence. First, he argues that events as the above-mentioned revolutions occurred as a result of speciation (or, what could be understood as cultural speciation). As reform monks had experimented with some kinds of social formations before the Papal Revolution, some heretic corporations had bred much before the burst of the Protestant Revolution, and many Masonic lodges had experimented with "new nuclear forms of social life" before the Constitutional Revolutions of the 18th century.<sup>998</sup> Also, he sees these revolutions as

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995 See Mesoudi, A. (2011). *Cultural Evolution: How Darwinian Theory can Explain Human Culture and Synthesize the Social Sciences*. p. 59.

996 According to James Mahoney and Kathleen Thelen: "An emerging body of work provides ideas on which we can build to understand gradual institutional change. New insights have grown out of the literature on path dependence and the ensuing debate over this framework (e.g., North 1990; Collier and Collier 1991; Arthur 1994; Clemens and Cook 1999; Mahoney 2000; Pierson 2004; Thelen 1999, 2004). Among other things, this work has led analysts to theorize the circumstances under which institutions are – and are not – subject to self-reinforcing "lock-in." Important strands of this literature suggest that path-dependent lock-in is a rare phenomenon, opening up the possibility that institutions normally evolve in more incremental ways. Likewise, works such as Pierson's *Politics in Time* (2004) discuss various slow-moving causal processes (e.g., cumulative causes, threshold effects, and causal chains) that do not evoke the punctuated equilibrium model of change that is frequently embedded in conceptualizations of path dependence (see also Aminzade 1992; Abbott 2001). Inspired by these works, Streeck and Thelen (2005) have offered an inventory of commonly observed patterns of gradual institutional change that allows us to classify and compare cases across diverse empirical settings." In Mahoney, J. and Thelen, K. (Eds.). (2010). *Explaining Institutional Change: Ambiguity, Agency, and Power*. Cambridge: Cambridge University Press. p. 3.

997 In Jacob, F. (1977). *Evolution and Tinkering*. *Science*, 196(4295), 1161-1166.

998 See Brunkhorst, H. (2014). *Critical Theory of Legal Revolutions: Evolutionary Perspectives*. p. 34.

having had been preceded by long periods of stasis, as predicted by Gould's Punctuated Equilibrium theory.<sup>999</sup>

Nonetheless, these two points provide no evidence for punctuational bursts instead of gradual change. First of all, there is no substantiation for his claims of cultural speciation before the mentioned revolutions. On the contrary, all of the above-mentioned revolutions occurred within the same cultural pool, with little cultural *isolation* as one could expect to be necessary for speciation to occur. What Brunkhorst sees as punctuational bursts are important events, but by no means they are an argument for speciation; they could also be modeled as cultural variations that have appeared and then spread in the cultural pool, later on affecting the sociological structure of the society they were embedded in.

As a matter of fact, when we see the long picture, most of the story of constitutionalism is a story of gradual cumulative change from the 11th century onwards. Maybe only the evolutionary story of *some* constitutional revolutions could be seen as punctuational bursts, not related to speciation – and here the biological analogy would not be so useful –, but resulting from specific social, political and economic conditions concerning the sociological reality of a given polity, such as the French and the American Revolutions. In other cases, such as in England, the emergence of constitutions can be entirely explained in a more conventional gradual framework as the product of cumulative and slow cultural, social and structural change. As I will argue later, a Constitutional Revolution is radically different in form when compared with the Protestant and the Papal Revolutions. Constitutional Revolutions institutionalize, in a short period, the normative framework needed to stabilize a functionally differentiated society, which is something that, albeit incipient, was not a full-blown reality in the religious revolutions, which were gradually creating the very conditions for functional differentiation, by separating the realms of law, politics and religion.

Another fruitful insight associated with Brunkhorst's thesis comes from a Marxist perspective. According to him, one major force in social evolution derives from the developmental logic of social class struggles, or the articulation of the sense of injustice.<sup>1000</sup> Unlike Marx, he does not see these

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999 See Brunkhorst, H. (2014). *Critical Theory of Legal Revolutions: Evolutionary Perspectives*. p. 35.

1000 See Brunkhorst, H. (2014). *Critical Theory of Legal Revolutions: Evolutionary Perspectives*. pp. 35-36.

struggles stemming from the economic domain alone<sup>1001</sup>, but also from other sources, such as gender-related issues, racial conflicts, religious freedom, among many other rights-based conflicts pervasive in constitutional history.

Brunkhorst's claims are impressive for an evolutionary constitutional theory insofar as he proposes a normative and descriptive approach. I will build up on his theory because it offers elements allowing the construction of a theory linking constitutionalism to the evolution of human cooperation.

As I have discussed in chapter 2, human pro-social behavior turned out to be possible due to an innate psychology that allows us to cooperate in large groups composed of genetically unrelated individuals and unified by a common cultural background (symbolic markers). However, the groups whose stability could be maintained by this psychology are not as sizable as our contemporary societies. They are huge when compared to chimpanzee bands, or *Homo ergaster* groups, but are really tiny when compared with the world society<sup>1002</sup> – a cooperative network encompassing almost all of the human kind (more than 7 billion people as I write), with the possible exception of some hunter-gatherer and forager small bands that had no contact with other civilizations. Even if we restrict the analysis of cooperation to national states, they are huge networks composed of hundreds of millions of citizens. In constitutional democracies, these cooperative networks are specially built under *no assumption of symbolic consensus*, since every citizen has a formally assured right to dissent. Religion is no more a foundation for social legitimacy and, as a result, citizens of literally dozens of religious affiliations live under the same legal and political structure.

How is this possible, given that our psychology constrains us to live within communities sharing the same symbolic markers – and religion, as history demonstrates, is one of the strongest symbolic markers ever produced? My answer to this question is that constitutionalism is a sociological structure that solves this evolutionary problem – but not only this one

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1001 See Brunkhorst, H. (2014). *Critical Theory of Legal Revolutions: Evolutionary Perspectives*. p. 33.

1002 On the concept of world society, see Luhmann, N. (2006). *La Sociedad Mundial*. For Luhmann, the world society is the system that includes all communications. Of course, it is an imprecision to say that it includes "people." However, as I describe it, it means that almost everyone can be included in communication, either as someone who can actively participate in it or can be passively brought into participation by the means of being communicated about in one or more systems.

– due to its multidimensional nature. It also solves structural problems related to functional differentiation by stabilizing and constraining systemic evolution. In order to understand how constitutionalism performs these tasks, however, we need to understand how it has evolved.

First of all, it is important to have in mind what I mean by constitutionalism. Unlike Chris Thornhill,<sup>1003</sup> for reasons that will become more apparent soon, I see constitutionalism as a feature of modern societies under the condition of functional differentiation. As a departure point, in order to define the concept of constitutionalism, I follow the proposal advanced by Horst Dippel<sup>1004</sup>, according to whom constitutionalism embodies ten principles: (i) limited government; (ii) popular sovereignty; (iii) a declaration of rights; (iv) the constitution as a supreme law (v) founded on universal principles; (vi) representative government to improve legitimacy and prevent aristocratic ruling and corruption; (vii) separation of powers; (viii) accountability; (ix) judicial independence; and (x) a procedure to amend constitutions over time.<sup>1005</sup>

Even if pre-modern societies had a concept of constitution, it could not involve any attempt of organizing their political body under all of these principles. The idea of constitution was either to be understood as *politeia*, the adopted form of government,<sup>1006</sup> or as mixed constitution – a conciliatory project to balance the interests of all social segments in order to avoid the disruption of social harmony as a result of disturbance.<sup>1007</sup> Both pre-modern concepts of constitution also assume it to be society's structure, an analogy with the idea of organic constitution in biology.<sup>1008</sup> The modern constitution, in opposition to these concepts, is neither of them, since it departs from the ideas that the government must be limited and that polit-

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1003 See Thornhill, C. (2011). *A Sociology of Constitutions*. McIlwain also argues that constitutionalism is specific to modernity. See McIlwain, C. (1947). *Constitutionalism Ancient and Modern*. Ithaca: Cornell University Press.

1004 See Dippel, H. (2005). Modern Constitutionalism: an Introduction to a History in Need of Writing. *Tijdschrift voor Rechtsgeschiedenis*, 73, 153.

1005 One could argue that these elements are not present in all cases. England, for instance, is known for not having a formal constitution. However, many of these elements are present even in the English case, and thus can instantiate a functional constitution.

1006 See Stourzh, G. (1988). Constitution: Changing Meanings of the Term. In Ball and Pocock (Eds.), *Conceptual Change and the Constitution*. Lawrence: The University Press of Kansas. pp. 36-38.

1007 See Fioravanti, M. (2001). Constitución: de la Antigüedad a Nuestros Días. pp. 55-70.

1008 See Stourzh, G. (1988). Constitution: Changing Meanings of the Term. p. 38.



ical power stems from the people, strange ideas for a medieval political philosopher.

According to Hauke Brunkhorst, modern constitutionalism is the consequence of an evolutionary process resulting from four revolutions: the Papal Revolution, the Protestant Revolution, the Atlantic Revolutions<sup>1009</sup> and the Egalitarian Revolution of the 20th century. The main effects of these revolutions are described by him in these terms:

"(1) the Papal Revolution of the twelfth century had the unintended side effect of the functional differentiation and self-referential closure of the legal system. (2) The Protestant Revolution 400 years later had the unintended side effect of the functional differentiation and self-referential closure of the political system. (3) The Atlantic Revolution of the eighteenth century had the unintended side effect of the functional differentiation and self-referential closure of the economic system and (4) the Egalitarian Revolution of the twentieth century had the unintended side effect of the functional differentiation and self-referential closure of the global educational system and the globalization of all functional systems."<sup>1010</sup>

Brunkhorst argues that each of the mentioned legal revolutions imposed new normative constraints due to the adoption of a new idea of freedom institutionalized in novel founding legal documents, imposing path dependence effects on further societal evolution. These normative constraints progressively imposed a ratchet effect on societal evolution, building additional complications for the reversal of evolutionary innovations. The class struggle selects human rights in each step, while systemic stabilization occurs as a result of the co-evolution of cosmopolitan and national statehood constitutionalization in each evolutionary step. These dimensions are described according to Parsons' AGIL scheme: the normative constraints account for Integration (I); the struggle for human rights accounts for the goal-attainment function (G); the ratchet effect maintains the latent normative pattern (L); and systemic stabilization through coevolution between cosmopolitan and national statehood sets the adaptation of the sys-

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1009 Hauke Brunkhorst calls all the 18th-19th century revolutions, such as the French and the American Revolutions, but not limited to them, as "Atlantic Revolutions."

1010 In Brunkhorst, H. (2014). *Critical Theory of Legal Revolutions: Evolutionary Perspectives*. p. 86.

tem (A).<sup>1011</sup> Each revolution provides small cumulative changes in every one of these dimensions.

The first event that drove the evolutionary path to modern constitutionalism is the Papal Revolution, which occurred between 1075 and 1170. By the beginning of the 11th century, Western Europe was rebuilding itself after a long period of decay following the fall of Rome.<sup>1012</sup> Society was still stratified, divided between masters and slaves (*potentes* and *pauperes*), and cities were loosely linked with one another. Christendom was totally fragmented in "micro-Christianities"<sup>1013</sup>. By that time, political authorities had the power of appointing ecclesiastical ones and, as a result, emperors, kings and feudal lords throughout Europe invested bishops and popes.<sup>1014</sup> "Of the twenty-five popes who held office immediately before 1059, twenty-one were appointed by emperors and five dismissed by them. Kings throughout Europe had veto power over the ability of church authorities to impose penalties on civil authorities."<sup>1015</sup>

Religious and political authority were then completely entangled, a situation that began to change by the end of the 11th century, when the Catholic Church declared its independence from secular power. The Pope Gregory VII argued that the Church was the only institution that could exercise legal authority over all Christendom – including political authority – and that, in order to accomplish this, the power to appoint ecclesiastical authorities should remain within the church. Gregory VII implemented many reforms, including the well-known imposed celibacy on priests and bishops, and attacked simony, through which church offices were bought and sold<sup>1016</sup>, in an attempt to reduce corruption and patrimonialism. According to Francis Fukuyama, the prohibition of marriage was an attempt to drive the loyalty of priests away from their own families to the church itself – something that makes sense even if analyzed from the standpoint of

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1011 See Brunkhorst, H. (2014). *Critical Theory of Legal Revolutions: Evolutionary Perspectives*. p. 89.

1012 See Brunkhorst, H. (2014). *Critical Theory of Legal Revolutions: Evolutionary Perspectives*. p. 90.

1013 In Brunkhorst, H. (2014). *Critical Theory of Legal Revolutions: Evolutionary Perspectives*. p. 91.

1014 See Fukuyama, F. (2011). *The Origins of Political Order: from Prehuman Times to the French Revolution*. New York: Farrar, Straus and Giroux. p. 263.

1015 See Fukuyama, F. (2011). *The Origins of Political Order: from Prehuman Times to the French Revolution*. pp. 263-264.

1016 See Berman, H. J. (1983). *Law and Revolution: The Formation of the Western Legal Tradition*. p. 93.

kin selection. In a certain sense, this measure is a way to suppress the innate predisposition to altruistic behavior toward genetic relatives, which could be a driver toward corruption inside the church.<sup>1017</sup>

Through his *Dictatus Papae* (1075), with only 2 pages and 27 legal canons, Gregory VII brought about a revolution which "unified the masses and mobilized them against high clerics, high nobles and the emperor"<sup>1018</sup>, who, of course, did offer strong opposition. The Holy Roman Emperor Henry IV threatened to expel the pope from the Apostolic See, and the response was clear: Gregory VII excommunicated and deposed the emperor.<sup>1019</sup> The Investiture Controversy endured for decades, until the matter was finally settled by the Concordat of Worms (1122), with an agreement through which both parties compromised. The Church gained some independence in investing its own authorities, while it also recognized the emperor's authority in secular matters. The legal differentiation between secular power and religious authority was affirmed for the first time.<sup>1020</sup>

The Papal Revolution was sociologically important in many relevant respects. First of all, the Catholic Church developed into a legally governed and bureaucratic institution. The Church not only became autonomous in appointing its own officials, but it also developed its own legal system - canon law -, which required the professional formation of scholars specially dedicated to its study. As Harold Berman states, before the Papal Revolution, there was no "perception of law as a distinct 'body' of rules and concepts. There were no law schools. There were no great legal texts dealing with basic legal categories such as jurisdiction, procedure, crime, con-

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1017 In Fukuyama's own words: " He [Pope Gregory VII] was driven by the same logic that led the Chinese and Byzantines to rely on eunuchs, or the Ottomans to capture military slaves and tear them from their families: if given the choice between loyalty to the state and to one's family, most people are driven biologically to the latter. The most direct way to reduce corruption was therefore to forbid officials to have families in the first place." In Fukuyama, F. (2011). *The Origins of Political Order: from Prehuman Times to the French Revolution*. p. 265.

1018 In Brunkhorst, H. (2014). *Critical Theory of Legal Revolutions: Evolutionary Perspectives*. p. 126.

1019 See Berman, H. J. (1983). *Law and Revolution: The Formation of the Western Legal Tradition*. p. 95.

1020 See Fukuyama, F. (2011). *The Origins of Political Order: from Prehuman Times to the French Revolution*. p. 266; Brunkhorst, H. (2014). *Critical Theory of Legal Revolutions: Evolutionary Perspectives*. p. 126; Berman, H. J. (1983). *Law and Revolution: The Formation of the Western Legal Tradition*. p. 85.

tract, property, and the other subjects which eventually came to form structural elements in Western legal systems."<sup>1021</sup> During and after the Investiture Controversy, everything changed. Law and politics became dis-embedded, differentiated functional systems. More than that, the first universities – and, with them, the first law schools – were created, and a class of legal professionals emerged and developed a legal doctrine, especially after the rediscovery and revival of Roman law.<sup>1022</sup> The combination between the legal differentiation from politics and the development of a skilled class of legal scholars soon produced a new system of canon law for the church, laying the foundations for the later development of modern legal systems.<sup>1023</sup> By this time, law was beginning to emerge as a functionally differentiated system, structurally coupled with the emerging systems of science and education, which were nested within the novel organization of the university.<sup>1024</sup> Its level of autonomy increased exponentially, but, although beginning to differentiate itself from politics, law still remained intertwined with religion and morality.<sup>1025</sup>

A second and already mentioned effect of the Papal revolution was the accumulation of political power through increasing legalization, although the political system had not yet become a symbolically differentiated medium of communication.<sup>1026</sup> Nonetheless, by separating the spiritual and secular political domains, the Gregorian reform paved the road for the subsequent emergence of the secular state. The complete differentiation between the political and religious domains, however, would still take many centuries to be completed; as late as in the 16th century, the semantics of political power through divine legitimation could still be seen in Jean Bodin's masterpiece, *Les six livres de la République*.

Although Brunkhorst overlooks this point, it is relevant to call attention for the relevance of the medieval charters of liberties, which institutional-

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1021 In Berman, H. J. (1983). *Law and Revolution: The Formation of the Western Legal Tradition*. p. 84.

1022 See Berman, H. J. (1983). *Law and Revolution: The Formation of the Western Legal Tradition*. p. 124.

1023 See Berman, H. J. (1983). *Law and Revolution: The Formation of the Western Legal Tradition*. p. 85.

1024 See Brunkhorst, H. (2014). *Critical Theory of Legal Revolutions: Evolutionary Perspectives*. p. 92.

1025 See Brunkhorst, H. (2014). *Critical Theory of Legal Revolutions: Evolutionary Perspectives*. p. 94.

1026 See Brunkhorst, H. (2014). *Critical Theory of Legal Revolutions: Evolutionary Perspectives*. p. 93.

ized some legal constraints on power holders.<sup>1027</sup> A major example of these charters is the Magna Carta of 1215, which was an attempt to settle conflicts of interest between an early centralizing monarch and feudal barons not willing to lose their power peacefully.<sup>1028</sup> These charters are not, however, constitutional documents in the modern sense,<sup>1029</sup> not only because they are still a product of a stratified and functionally undifferentiated society, but also in view of the fact that they do not institutionalize universal individual rights protecting all the members subjected to political power. As Marcelo Neves state:

"In the social dimension or personal sphere of validity, political settlements were 'particular' and referred to certain agreements between the

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1027 See Neves, M. (2013). Transconstitutionalism. p. 16.

1028 In Chris Thornhill words: "In England, although there was only limited reception of Roman law, the high medieval period, and especially the reign of Henry II, saw a thorough systematization of the legal apparatus of state. This process involved a rapid increase in the formality of judicial procedure, the establishment of reliable precedents for ruling cases, the integration of local courts into one overarching legal system subordinate to a central court, the more extensive use of general eyres (in fact established, debatably, by Henry I) to supervise the provision of justice in local courts, and, in total, a thorough laicization and regular central organization of judicial process. By 1200, the primary foundations of the English common law, destined to last for centuries, were already established. Notably, then, the principles of English judicial order were further formalized in Magna Carta (1215), which at once clarified feudal law and enshrined a set of normative principles that could be invoked to resolve controversy over judicial procedure. Although most obviously an attempt to curb the use of royal power against a baronial oligarchy, Magna Carta arose from a context in which plaintiffs found substantial benefits in a stable judicial order, and it reflected a positive evaluation of regular centralized royal justice (Holt 1992: 121– 1992: 121–3). Indeed, Article 18 of Magna Carta evidently reinforced royal justice: the document as a whole 'demanded more justice' (Stacey 1987: 9), and it led to the holding of county courts with increased regularity (Palmer 1982:25)." In Thornhill, C. (2011). *A Sociology of Constitutions*. p. 51.

1029 See, on this point, Cristiano Paixão and Renato Bigliuzzi's comments: "It is necessary to highlight that the Magna Carta *is not* a precursor legal instrument of the modern constitutions. On the contrary, it is a commitment agreement, a contract celebrated between the king and the barons, within the strictest feudal tradition, in which the parts impose reciprocal duties and obligations. The Magna Carta specifies clearly the possibility of contract breach in case of violation, by one of the parties, of the contracted obligations." In Paixão, C. and Bigliuzzi, R. (2011). *História Constitucional Inglesa e Norte-Americana: do Surgimento à Estabilização da Forma Constitucional*. Brasília: Editora UnB. p. 37.

monarch and the nobility or part of the bourgeoisie. Modern constitutions, in contrast, claim to be 'universal' and refer inclusively to all members of the respective juridical-political organization, attributing fundamental rights to each person. In other words, political settlements can be said to entail a particularistic and exclusionary language at the pragmatic level of those who are empowered to employ it and those to whom it is addressed, whereas the modern constitution claims to be a pragmatically universalistic language, despite the difference between nationals and aliens."<sup>1030</sup>

The Papal Revolution imposed normative constraints on societal evolution. The separation between *sacerdotium* and *regnum* imposed a path dependence constraint on subsequent societal evolution, instituting a sharp limitation on attempts to reverse it. If, on the one hand, the church became free from imperial power, on the other hand, political power also became desacralized.<sup>1031</sup> With the development of law as a differentiated system, the very exercise of political power had to be performed through the means of law. Unlike most pre-modern stratified societies, in which political power, even though morally and religiously restricted, was formally limitless, the Papal Revolution paved the road to the imposition of legal limits to the exercise of power and, also, to the idea that the very exercise of political power could only be performed through the means of law.<sup>1032</sup>

Brunkhorst sees amidst the Investiture Crisis a particular class struggle between the urban and rural plebs (*pauperes*) and the clerics, nobles and rich burghers (*potentes*). His sociological analysis is interesting to a consti-

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1030 In Neves, M. (2013). Transconstitutionalism. p. 17.

1031 See Brunkhorst, H. (2014). Critical Theory of Legal Revolutions: Evolutionary Perspectives. p. 97.

1032 Brunkhorst sees the political theory of John of Salisbury as a precursor of many posterior developments in legal theory: "The turn from a *ruler who keeps order in his family-like state* to the idea of an *independent legal and constitutional order* that has to be preserved by the ruler was brought about, not as late as the political theory of the sixteenth century (as Quentin Skinner and the mainstream political theory of the Neuzeit assume), but already in the time of John of Salisbury and his intellectual contemporaries. John adopts the classical organic metaphors of political theory, but combines them in a way that reminds one 'of modern systems theory, with the concept of flows, subordination, and hierarchy, feedback, controller and programme.' This is why John could conceive society differently from Aristotle, as a progressive rational entity that can improve its rationality constantly, oriented by an ultimately divine programme of justice." In Brunkhorst, H. (2014). Critical Theory of Legal Revolutions: Evolutionary Perspectives. p. 98.

tutional theorist because he focuses on the role of a specific kind of organization on the observed class struggle – the monasteries. Before the reform advanced by pope Gregory VII, the number of monasteries rapidly arose and, with them, the ideas of justice and salvation through the law spread throughout Christendom. The monks spread their word through the oppressed population and mobilized the *pauperes* against the *potentes*, who were supported by the emperor in a nearly European-wide Peace of God movement, which originated in the 10th century. Its councils met 26 times between 998 and 1038, and, based on claims of spiritual humility and material indigence, asked the rich to fund the monasteries, which would provide sustenance to the poor.<sup>1033</sup>

These new formal organizations led the path to the origin of novel corporations, such as the many Catholic orders (like the Franciscans, Dominicans, Augustinians and so on), which were protected under the tenets of canon law through the distinction between the juridical personality of the corporation and of its particular members. Law recognized new kinds of organizations as legal bodies, constituted by their own sets of rules – an advance that enabled the spread of many other kinds of corporations, such as cities, universities, merchant corporations, professional associations, schools and, later on, unions, hospitals, fraternities and other organizational forms.<sup>1034</sup>

It is also important to highlight that Brunkhorst sees in each revolution a process of co-evolution between cosmopolitan and national statehood that began with the Papal Revolution. With the functional differentiation of law, the universal legal and administrative structure of the church began to be replicated within the European kingdoms and republican city-states, in a process that completely reconstructed the very concept of monarchy. As a result, a new cosmopolitan system emerged, having in its center "the formal organization of a plurality of kingdoms as territorial states."<sup>1035</sup>

The second revolution mentioned by the German political sociologist also occurred in the heart of Christianity: the Protestant Revolution. Again, it was a widespread movement that encompassed most of Europe, having had in its centers Germany (Lutheran Reformation, from 1517 to

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1033 See Brunkhorst, H. (2014). Critical Theory of Legal Revolutions: Evolutionary Perspectives. pp. 111-112.

1034 See Brunkhorst, H. (2014). Critical Theory of Legal Revolutions: Evolutionary Perspectives. pp. 118-121.

1035 See Brunkhorst, H. (2014). Critical Theory of Legal Revolutions: Evolutionary Perspectives. p. 134.

1555), the Netherlands (Calvinist Revolution, from 1572 to 1585) and England (Calvinist Reformation and the English Revolution, from 1640 to 1689).<sup>1036</sup>

Brunkhorst highlights many evolutionary advances as a result of both Protestant and counter-reformation movements. First of all, the church lost its constitutional status, being relegated to the status of a secular order put alongside all others. Second, a state-centered and eurocentric cosmopolitan global order emerged, supported by a modern *ius gentium* and *ius publicum europaeum*, which structured the emergence of global trade. In addition, the Protestant Reformation had as a consequence the inception of novel forms of governments that would be later on be appropriated by modern constitutionalism.<sup>1037</sup>

Protestant Revolution accelerated the process of functional differentiation – especially, with respect to legal theory, the differentiation between law, morality and religion. The separation between law, morality and religion through positivity excluded the very possibility of founding law on "the medieval notion of a cosmologically founded, hierarchical architecture, which provided for natural and divine law."<sup>1038</sup> The positivity of law led to the differentiation between law as a social system, on one side, and religion as separate and functionally equivalent social systems that nonetheless performed different functions. Thus, although we can morally evaluate law as being good/evil,<sup>1039</sup> and a religious system might evaluate law as being in strict accordance/dissonance with transcendental principles of deity-given natural law,<sup>1040</sup> these judgments are not legally binding in modern society, although they would have been in pre-modern times.

The separation of law, morality and religion resulted, at least in part, from religious pluralism. The European wars of religion in the 16th and 17th centuries, which followed the beginning of the Protestant Reformation, resulted from the decoupling of state power and religion. Not only were Protestants and Catholics struggling for control of power and religious dominance, but also royal authority was still fighting for full inde-

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1036 See Brunkhorst, H. (2014). Critical Theory of Legal Revolutions: Evolutionary Perspectives. p. 149.

1037 See Brunkhorst, H. (2014). Critical Theory of Legal Revolutions: Evolutionary Perspectives. pp. 149-150.

1038 In Luhmann, N. (2004). Law as a Social System. p. 77.

1039 See Luhmann, N. (2004). Law as a Social System. pp. 76-77.

1040 See Laermans, R. and Verschraegen, G. (2001). "The Late Niklas Luhmann" on Religion: An Overview. *Social Compass*, 48(1), 7-20.



pendence against the religious control of secular power.<sup>1041</sup> The aftermath of the wars brought a Revolution in political theory. Thomas Hobbes<sup>1042</sup> maintained that peace could not be sustainable unless absolute power was concentrated in the hands of a sovereign. According to Hobbes, religious struggle could only be solved by adopting one uniform religion in the realm. Later, John Locke posited toleration as a political principle by separating politics and religion.<sup>1043</sup> However, the logic of *A Letter Concerning Toleration* is *still* not an institutional logic at all. Locke appealed to an interpretation of the sacred scriptures to establish a foundation for tolerance; it was a demand from Christian religion, not from a secular institutional framework. For instance, in the very beginning of the text, Locke states:

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1041 According to Harold J. Berman: "[T]he Netherlands, which was subject to the Roman Catholic Spanish Crown, was de facto sharply divided between Roman Catholic and Protestant (chiefly Calvinist) provinces. In Roman Catholic France, following a series of internal religious wars, Henry IV's Edict of Nantes of 1598 provided protection for (chiefly Calvinist) Huguenots, and in Protestant England under Elizabeth (1558–1603) there was a de facto toleration of moderate forms of Calvinist Puritanism within the Church of England and of private individual Roman Catholic worship services. Nevertheless, the religious situation in both those countries, as in Germany, remained one of great tension, culminating in the seventeenth century in a series of religious wars throughout the continent of Europe that are known collectively as the Thirty Years' War (1618–1648). In France, the persecution of Protestants resumed, culminating in the revocation of the Edict of Nantes in 1685. In England, the Crown cracked down on the Puritans, who eventually rose up in a civil war. Closely connected with the religious crisis was a *political crisis* within each of the major political dominions into which Europe was divided, as well as an international political crisis among them. Within the various polities there was a continual tension between the principle of constitutional monarchy and the principle of absolute monarch. In sixteenth-century Germany, the power of the Lutheran prince was limited, on the one hand, by the dictates of Christian conscience, reinforced by pastoral admonition, and, on the other, by the body of high counselors, the *Obrigkeits*, which was also subject to Christian conscience and which shared the prince's sovereignty. Protestants in other countries sought to establish similar limitations on the ruler's power, usually without success. Even in Roman Catholic countries, the church came increasingly under royal power and a doctrine of absolute monarchy came to be asserted." In Berman, H. J. (2003). *Law and Revolution II: the Impact of the Protestant Reforms on the Western Legal Traditions*. Cambridge (MA): The Belknap Press. p. 202.

1042 See Hobbes, T. (1996). *Leviathan*: Cambridge University Press. p. 373.

1043 In Locke, J. (1998). *A Letter Concerning Toleration* Hazleton: Electronic Classics Series. p. 7.

"[T]oleration to be the chief characteristic mark of the true Church. (...) Let anyone have never so true a claim to all these things, yet if he be destitute of charity, meekness, and good-will in general towards all mankind, even to those that are not Christians, he is certainly yet short of being a true Christian himself."<sup>1044</sup>

It is no surprise, then, that he holds that toleration does not apply to atheists.<sup>1045</sup> Although to our modern eyes this seems unjustifiable in a political doctrine of toleration, Locke's account on this matter was a huge advance in terms of the philosophical justification of how the government should address the issue of a still incipient religious pluralism. Toleration and the principle of the separation of church and state (developed later in history) were semantic innovations that resulted from the functional differentiation between law, politics and religion, among other systems. Locke turned out to be wrong in his specific reading of the Bible, which might lead to the understanding that toleration was a direct implication of the sacred text, since the structural reasons behind it were far deeper than he could conceive of. Toleration and the separation of church and state implied that the very basis of legitimacy in the new regime was not a metaphysical set of beliefs implicitly held as true by the entire social body – but the very idea of having rights as a precondition of being socially included as an equal citizen.<sup>1046</sup>

Ultimately, the religious pluralistic framework of the 16th century led to a total disruption involving legal/political authority and religion. In a rare historical appreciation, a usually philosophically abstract John Rawls examines the institutional impact that derived from such an unstable societal framework. The impact of the Reformation was huge, as the divide within medieval Christianity produced a dogmatic rival religion, as fanatic and intolerant as the Roman Church. In a world where theology had been the very foundation of civil society and political organization, the pluralist di-

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1044 In Locke, J. (1998). *A Letter Concerning Toleration* p. 7.

1045 According to Locke: "Lastly, those are not at all to be tolerated who deny the being of a God. Promises, covenants, and oaths, which are the bonds of human society, can have no hold upon an atheist. The taking away of God, though but even in thought, dissolves all; besides also, those that by their atheism undermine and destroy all religion, can have no pretence of religion whereupon to challenge the privilege of a toleration." In Locke, J. (1998). *A Letter Concerning Toleration* p. 43.

1046 On the relationship between rights and legitimacy, see Thornhill, C. (2008). *Towards a Historical Sociology of Constitutional Legitimacy. Theory and Society*, 37(2), 161-197.

vide was disastrous, indicating the need to philosophically reconsiderate the building principles guiding sociopolitical institutions:

"Even the earlier proponents of toleration saw the division of Christendom as a disaster, though a disaster that had to be accepted in view of the alternative of unending religious civil war. Thus, the historical origin of political liberalism (and of liberalism more generally) is the Reformation and its aftermath, with the long controversies over religious toleration in the sixteenth and seventeenth centuries. Something like the modern understanding of liberty of conscience and freedom of thought began then. As Hegel saw, pluralism made religious liberty possible, certainly not Luther's and Calvin's intention."<sup>1047</sup>

An important effect of the Protestant mindset was the development of *ius gentium* by many Protestant and Catholic theorists such as Vitoria, Pufendorf and Grotius.<sup>1048</sup> In ancient Roman law, *ius gentium* referred back to an idea of natural law – universal normative principles applicable to "all animals."<sup>1049</sup> More and more, however, the Romans began to use the concept also to cope with relations with foreigners, which, with the growth of the Empire, demanded a relatively stable normative framework to cope with issues arising from wars and commerce.<sup>1050</sup>

Between the 15th and the 17th centuries, the concept of *ius gentium* changed substantially, leading to fundamental changes in the legitimation of political power. Brunkhorst illustrates this point by highlighting two points in Francisco de Vitoria's *ius gentium* doctrine. First of all, the uncoupling between religion, state and law led to a new principle of legitimation. Instead of natural law, Vitoria argued that the legitimacy of a govern-

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1047 In Rawls, J. (2005). *Political Liberalism*. pp. 23-24.

1048 On this point, see Koskeniemi, M. (2012). A History of International Law Histories. In Fassbender and Peters (Eds.), *The Oxford Handbook of the History of International Law*. Oxford: Oxford University Press.

1049 In Koskeniemi, M. (2012). A History of International Law Histories. p. 702. According to Bobbio, Roman law distinguished between *ius naturale*, *ius gentium* and *ius civile*. *Ius naturale* related to the law taught by nature to all animals, while *ius gentium* was the law applicable to all peoples and *ius civile*, the law of a particular people, the positive law. See Bobbio, N. (1999). *O Positivismo Jurídico*. pp. 17-18.

1050 See Koskeniemi, M. (2012). A History of International Law Histories. pp. 702-703.

ment originated from the consensus of the community of peoples.<sup>1051</sup> He considered the right to consent through majority vote a political right co-original with human creation by God and, as representatives of their people, rulers acted as mere "organs of the universal order of peoples."<sup>1052</sup>

Second, for the first time, the individual human being was conceived of as an *equal bearer of rights*. All humans are conceived of as equals under God (after all, he was a Catholic!) and as such, everyone – and all peoples – shared subjective rights to equal freedom.<sup>1053</sup> His arguments had been developed in the context of *ius gentium* and, as such, the individual was conceived of as a responsible subject in the context of the law of nations, and not only in a regional legal framework. These were not only abstract ideas, but worked as legal arguments advanced by Vitoria and Bartolomé de Las Casas against the oppression and enslavement of natives in America.<sup>1054</sup> These ideas would be fundamental to the political upheaval of the following centuries.

As in the early Gregorian reform, Hauke Brunkhorst identifies another class struggle in the course of Protestant Revolution, now between the mass of peasants and plebeian classes in the cities and the holders of the political power. The peasants led the first "revolution of the common man"<sup>1055</sup> throughout all Europe, struggling for "the abolition of monopolies, reform of poor law, reduction of taxes, religions toleration, and a

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1051 This quote from Francisco de Vitoria illustrates his view on political legitimacy: "Because the particular state, and in particular the whole Christian province is part of the whole community of peoples, a war that is waged in the legitimate interest of a specific state, is an unjust war if it is not in the interest of the whole community of peoples." This passage was extracted from Vitoria's *De Potestate Civili*, and translated by Brunkhorst. In Brunkhorst, H. (2014). *Critical Theory of Legal Revolutions: Evolutionary Perspectives*. p. 153.

1052 In Brunkhorst, H. (2014). *Critical Theory of Legal Revolutions: Evolutionary Perspectives*. p. 153.

1053 See Brunkhorst, H. (2014). *Critical Theory of Legal Revolutions: Evolutionary Perspectives*. p. 154.

1054 On this point, see Coates, K. (2012). North American Indigenous Peoples' Encounters. In Fassbender (Ed.), *The Oxford Handbook of the History of International Law*. Oxford: Oxford University Press. p. 599.

1055 See Blickle, P. (1998). *From the Communal Reformation to the Revolution of the Common Man*. Köln: Brill. p. 198.

wider franchise,"<sup>1056</sup> while in the urban poor mobilized against oppression and exploitation.<sup>1057</sup>

Their political claims had a legal foundation: they appealed to the older medieval charters of freedoms, which originally included only the monarch and the nobility, in order to claim for their own political inclusion.<sup>1058</sup> The strengthening of the cities with the corresponding weakening of the rural nobility and the development of the printed press helped a new ideology of liberty and self-government to be spread, backed by claims of freedom of speech and religious toleration.<sup>1059</sup> In England, the conflict between the landed gentry and the royal bureaucracy led to the check on royal government through the – not *popular* – Glorious Revolution and the establishment of parliamentary monarchy through the adoption of the Bill of Rights.<sup>1060</sup> In Germany, the Peasants' War that took place more than a century earlier (in 1525) also strived for a new form of government, legitimized from below.<sup>1061</sup>

Many legal rights that were later on formalized as constitutional rights were at the roots of the peasant movements. The Twelve Articles of Memmingen, which summarized the peasants' demands during the 1525 movement, included the assumption of every individual human being as free and equal (3rd article), a powerful claim against serfdom and slavery; set that individuals could only be criminally punished if the offense had been

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1056 In Berman, H. J. (2003). *Law and Revolution II: the Impact of the Protestant Reformations on the Western Legal Traditions*. p. 218.

1057 See Brunkhorst, H. (2014). *Critical Theory of Legal Revolutions: Evolutionary Perspectives*. p. 175.

1058 See Brunkhorst, H. (2014). *Critical Theory of Legal Revolutions: Evolutionary Perspectives*. pp. 175-176.

1059 See Brunkhorst, H. (2014). *Critical Theory of Legal Revolutions: Evolutionary Perspectives*. pp. 175-176.

1060 See Paixão, C. and Bigliazzi, R. (2011). *História Constitucional Inglesa e Norte-Americana: do Surgimento à Estabilização da Forma Constitucional*. pp. 86-87.

1061 According to Blicke: "Here, the Reformation impulse escalated to the Revolution of the Common Man due to popular fervor rather than theoretical leadership. The clearest evidence are the constitutional drafts of the 1525 revolution, where the principles of *communes* and *elections* emerge as the cornerstones of a new political order." In Blicke, P. (1998). *From the Communal Reformation to the Revolution of the Common Man*. p. 198. On this point, see also Berman, H. J. (2003). *Law and Revolution II: the Impact of the Protestant Reformations on the Western Legal Traditions*. p. 49.

legally defined in advance (9<sup>th</sup> article); and included some provisions against unfair taxes.<sup>1062</sup>

Although the peasants ultimately lost their struggle, their ideals persisted. Later on, the same ideas reappeared in other variations, and progressively subjective rights to freedom were implemented, even if still limited to the upper classes at the beginning. Freedom of property, *habeas corpus* rights, freedoms of speech and publication, and religious rights are among the rights that resulted from the Protestant Revolution.<sup>1063</sup>

In Brunkhorst's view, England, through its Glorious Revolution, advanced national statehood more than any other state had before. It already had a strong doctrine of fundamental laws performing constitutional function, limiting and structuring the exercise of political power.<sup>1064</sup> Although still a religious state, more and a more law became disembedded from any

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1062 In Harold Berman's words: "Early in 1525 the leaders of the peasant revolt issued a manifesto, called the Twelve Articles, addressed to 'the Christian reader' and citing extensive scriptural authority for all of its provisions. The preamble stated that the Gospel teaches 'nothing but love, peace, patience, and unity,' and that the demands of the peasants were based on these virtues, but that the devil had driven foes of the Gospel to resist and reject those demands. The first article then asked that individual parishes be given the right to appoint their own pastors. The second article asked that the tithe on grain be collected by the church wardens, appointed by the parishes, and that it be used only to pay the pastor and (with what remained) to distribute to the poor and (with whatever remained after that) for military defense, 'so that no general territorial tax will be laid upon the poor folk.' The tax on livestock was to be abolished all together. Article 3 denounced 'the custom for the lords to own us as their property,' although it added that 'we should willingly obey our chosen and rightful ruler, set over us by God, in all proper and Christian matters.' Articles 4 to 11 demanded the removal of restrictions on hunting and fishing, the return to the village of its woods and forests so that building timber and firewood could be collected by the peasants, the reduction of labor services, observance by lords of the terms of the leases to which they had previously agreed, the adjustment of rents to conform to the land's yield, a reduction of the level of criminal penalties 'according to the ancient written law and the circumstances of the case and not according to the judge's bias,' the return of communal meadows and fields by people who had seized them, and the total abolition of death taxes. Article 12 declared that 'if any one or more of these articles are not in agreement with God's word (which we doubt), then this should be proved to us from Holy Writ. We will abandon it, when this is proved by the Bible.'" In Berman, H. J. (2003). *Law and Revolution II: the Impact of the Protestant Reformation on the Western Legal Traditions*. pp. 55-56.

1063 See Brunkhorst, H. (2014). *Critical Theory of Legal Revolutions: Evolutionary Perspectives*. p. 186.

1064 See Thornhill, C. (2011). *A Sociology of Constitutions*. p. 103.

religious foundation, and the political system turned itself into an abstract statehood specialized in the "maintenance and accumulation of power."<sup>1065</sup>

The emergence of communicative rights such as free speech, the right to petition and to publication also fostered the emergence of an incipient public sphere. More and more, citizens resorted to petitions in order to debate and call for more accountability from the state, enhancing the communicative power of society as a "necessary condition for the unleashing of the communicative productivity of politics."<sup>1066</sup> These were necessary conditions for the organization of an opposition strong enough to institutionalize a new principle of legitimacy based on parliamentary representation of the people.<sup>1067</sup> From now on, the political system remained intrinsically linked to an ideal of popular sovereignty; the government is legitimate due to the consent of the ruled.

The "Atlantic World Revolution" is the third revolution examined by Brunkhorst. It encompasses many revolutionary events occurring in the transition between the 18<sup>th</sup> and 19<sup>th</sup> centuries, especially, but not restricted to, America and Europe: the American Revolution (1763/1775-1788) and Civil War (1861-1865), the French Revolution (from 1789 to 1851), the Revolution of Haiti (1791-1804) and the many Latin American Revolutions (in Bolivia, Argentina, Mexico, San Salvador, New Granada, Venezuela, Gran Columbia, Ecuador, Peru, from 1809 to 1829), Spain (1820 and 1833-1840), Naples (1820), Sicily (1820) and Piedmont (1821), Greece (1821-1829), and Portugal (1832-1834).<sup>1068</sup> In virtue of their dissemination throughout the Atlantic, and later, to the entire world, Brunkhorst calls this the "first world revolution."<sup>1069</sup>

As a result of the Atlantic World Revolution, in only one century institutions that persisted for centuries in human history such as slavery, stratification and absolute monarchy as the paradigmatic organizational form of government, were wiped out as legitimate institutions. The constitutional

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1065 See Brunkhorst, H. (2014). *Critical Theory of Legal Revolutions: Evolutionary Perspectives*. p. 222.

1066 See Brunkhorst, H. (2014). *Critical Theory of Legal Revolutions: Evolutionary Perspectives*. p. 224.

1067 In Fioravanti, M. (2001). *Constitución: de la Antigüedad a Nuestros Días*. pp. 96-99.

1068 See Brunkhorst, H. (2014). *Critical Theory of Legal Revolutions: Evolutionary Perspectives*. pp. 235-236.

1069 See Brunkhorst, H. (2014). *Critical Theory of Legal Revolutions: Evolutionary Perspectives*. p. 234.

revolutions replaced them with an egalitarian logic that dissolved stratification, based on principles of accountable and representative rulings founded on popular legitimacy.

Brunkhorst situates the Atlantic World Revolution as the global crisis of the stratified society that pervaded all over the world in the last 5,000 years. A common problem observed almost everywhere was the fiscal crisis of government, caused by dysfunctional public administration, which resulted in a motivational crisis. "The reluctance of landed gentry, merchants and common men to pay taxes and duties and to give away their sons as soldiers was answered with more oppression and despotism which, in a vicious circle, caused growing disloyalty, popular riots, peasant insurgencies, civil wars and, finally, revolutions."<sup>1070</sup>

From a sociological perspective, there was an even deeper crisis, of which the fiscal troubles were nothing but the tip of the iceberg. Stratified order worked against the completion of functional differentiation, since the higher strata concentrated most resources and has privileged access to economic benefits, political power and law, imposing difficulties on the autonomous development of each social system. The concentration of resources on only a few individuals deeply impaired the efficient allocation of resources. Luhmann argues that the undifferentiated stratified order depended on real estate as the paramount resource, insofar as land represented not only economic prowess, but also political power. The rapid economic development of the late Middle Ages, however, dissolved the fusion of all these properties within real estate, which became only an economic asset, needed as a security for credit.<sup>1071</sup> Property was progressively affirmed as an irrelevant social cue for political power. The same happened within other institutional domains: the development of universities progressively took scientific knowledge out of the hands of a noble elite; Protestant Revolution took religion out of the hands of a cleric elite; and the development of a legal bureaucracy soon made law relatively independent from a lord's will.

Law and politics also became increasingly differentiated, finishing a process that had begun in the Papal Revolution. The completion of functional differentiation between these systems is the development of constitutions, which are structural couplings between both systems that impose legal constraints on political systems, but which also create a channel through

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1070 See Brunkhorst, H. (2014). *Critical Theory of Legal Revolutions: Evolutionary Perspectives*. p. 238.

1071 See Luhmann, N. (2004). *Law as a Social System*. p. 387.



which politics, through legislation, can influence legal communications.<sup>1072</sup> As states are the *vehicles* of constitutions,<sup>1073</sup> the functional differentiation between politics and law can only be considered completed when the national state arises as an organizational form, structured by constitutions that grant subjective rights, are legitimized by popular will and adopt a system of checks and balances. All these features protect and foster functional differentiation, insofar as they impose difficulties on any attempt of reversal to the older stratified and functionally undifferentiated regime.

The evolutionary ratchet imposed by the Atlantic World Revolution is the appeal to popular sovereignty<sup>1074</sup> and, I would say, to the idea of universal rights. Unlike the above-mentioned Papal and Protestant Revolutions, the revolutionary legitimation basis lacked any necessary religious *foundation* other than the very will of the people. Even if some revolutionaries still used religious rhetoric, it was not a necessary philosophical foundation; the most common rhetoric ladder was the metaphor of the social contract.<sup>1075</sup>

Brunkhorst sees the Atlantic Revolution as a result of many class struggles. While in North America the struggle was against colonial authority,<sup>1076</sup> the French *sains-culotte* had to depose the nobility, representatives of the old stratified society.<sup>1077</sup> In Haiti, sides changed; the oppressed fought against the French revolutionaries for the abolition of slavery, provoking them by singing the Marseillaise.<sup>1078</sup> Within each struggle, the oppressed appealed to claims for equality and freedom for *all* human beings.

Egalitarianism became a widespread ideal, spread in an emerging public sphere. Revolutionaries used either secret organizations such as Masonic

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1072 See Luhmann, N. (2004). Law as a Social System. pp. 403-404.

1073 See Luhmann, N. (2004). Law as a Social System. p. 404.

1074 See Brunkhorst, H. (2014). Critical Theory of Legal Revolutions: Evolutionary Perspectives. p. 241.

1075 See Brunkhorst, H. (2014). Critical Theory of Legal Revolutions: Evolutionary Perspectives. p. 241.

1076 See, on the American Revolution, Wood, G. S. (2002). The American Revolution - A History; Paixão, C. and Bigliuzzi, R. (2011). História Constitucional Inglesa e Norte-Americana: do Surgimento à Estabilização da Forma Constitucional. pp. 91-171.

1077 See Carlyle, T. (2007). *The French Revolution* (Kindle ed.). New York: Modern Library; Israel, J. (2014). Revolutionary Ideas; Kaiser, T. E. (1979). Feudalism and the French Revolution. *The History Teacher*, 12(2), 203-216.

1078 See Brunkhorst, H. (2014). Critical Theory of Legal Revolutions: Evolutionary Perspectives. p. 260.

Lodges<sup>1079</sup> or public ones like coffee shops to criticize the rulers and spread their ideals. Although Habermas acknowledges the development of a public sphere in England only in the 18th century, after the Glorious Revolution, he also admits the role of an incipient "public sphere" in amidst the political turmoil that led to the institutionalization of the Parliament as the supreme power,<sup>1080</sup> imposing a check on the monarchy:

"Already in the 1670s the government had found itself compelled to issue proclamations that confronted the dangers bred by the coffee-house discussions. The coffee houses were considered seedbeds of political unrest: "Men have assumed to themselves a liberty, not only in coffee-houses, but in other places and meetings, both public and private, to censure and defame the proceedings of the State, by speaking evil of things they understand not, and endeavoring to create and nourish an universal jealousy and dissatisfaction in the minds of all His Majesties good subjects. Censorship came to an end with the Licensing Act of 1695; the Queen several times admonished the members of Parliament to bring censorship back, but in vain. To be sure, the press continued to be subject to the strict Law of Libel and to the restrictions connected with numerous privileges of Crown and Parliament. The stamp tax, enacted in 1712, resulted in a temporary setback: the journals printed fewer copies and were reduced in volume; some disappeared altogether. Compared to the press in the other European states, however, the British press enjoyed unique liberties."<sup>1081</sup>

A new idea of freedom emerged from the revolutionary movements and the legal documents resulting from them, such as the French Declaration of Human and Civic Rights (1789), the French Constitution (1791) embodying many fundamental rights, the American Constitution (1787) and the following Amendments. Their normative root was founded both on popular sovereignty and individual rights: from now on, political power is not only limited by law as liberals insist, but also law is to be construed democratically. Everyone is an author and addressee of law, being poten-

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1079 See Koselleck, R. (1988). *Critique and Crisis*. Cambridge (MA): MIT Press. pp. 76-97.

1080 See Brunkhorst, H. (2014). *Critical Theory of Legal Revolutions: Evolutionary Perspectives*. p. 227.

1081 In Habermas, J. (1991). *The Structural Transformation of the Public Sphere*: The MIT Press. p. 59.

tially included both in the political system and in the legal system.<sup>1082</sup> Formal procedures and institutions must assure equal access to the political system and equal rights to be included in every social system.

Many rights were formalized, including the ones that resulted from previous historical events. The separation between church and state was institutionalized in constitutional terms, closing the door to any attempt to legitimize political power on religious grounds. In addition, the right to adopt, abandon or revise a particular religion has been assigned to the individual as a formal right not to be imposed by the state.<sup>1083</sup> State political legitimacy is not to be presumed, but a permanent link to popular sovereignty, since facing further revolutions is a permanent possibility.<sup>1084</sup> Individual rights to own property, to vote (even if franchise was limited to property-owners at first), resistance against tyranny, freedom of opinion, the presumption of innocence, *habeas corpus*, and to equality (especially after the abolitionist movements), became universal.

From the Atlantic Revolutions onwards, the old stratified society had to be replaced by a novel structural framework, compatible with the imperatives of functional differentiation. The fourth Revolution mentioned by Brunkhorst, the Egalitarian World Revolution, fostered those ideals even further. However, the main seeds of the structural movement had already been planted with the adoption of universal right-granting constitutions. Of course, this is not an attempt to understate the relevance of undertakings such as feminism, the peace or the workers' movement, or the anti-colonization campaigns, which are at the core of the Egalitarian World Revolution.<sup>1085</sup> Still, as I see them, they are more a continuous process of the above-mentioned rupture with stratification than a novel revolutionary

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1082 See Habermas, J. (2001). Constitutional Democracy: A Paradoxical Union of Contradictory Principles? pp. 780-781.

1083 See Rawls, J. (2005). Political Liberalism. p. 19.

1084 This is the very "moral" foundation invoked in the American Declaration of Independence to justify the act: "We hold these truths to be self-evident, that all men are created equal, that they are endowed by their Creator with certain unalienable Rights, that among these are Life, Liberty and the pursuit of Happiness. – That to secure these rights, Governments are instituted among Men, deriving their just powers from the consent of the governed, – That whenever any Form of Government becomes destructive of these ends, it is the Right of the People to alter or to abolish it, and to institute new Government, laying its foundation on such principles and organizing its powers in such form, as to them shall seem most likely to effect their Safety and Happiness."

1085 See Brunkhorst, H. (2014). Critical Theory of Legal Revolutions: Evolutionary Perspectives. p. 359.

process. Here, I follow Lynn Hunt's<sup>1086</sup> claim that constitutional rights have a particular logic: once they are set and institutionalize rights for one group, their universalistic approach can trigger claims for egalitarian treatment in other, even more excluded groups.

My purpose on discussing Brunkhorst's book had two intentions. The first one was to offer a historical sociology analysis of the evolution of constitutionalism, with the goal to offer a broad explanation of how stratified societies were dissolved in modernity and of the role of constitutionalism in the process. The second one was to show how this process brought with it the return of egalitarianism, the ideal that pervaded most of human history but had been lost during at least the last 5,000 years.

Now, I must qualify my analysis by referring back to the elements developed in the previous three chapters. In the next section, I will attempt to use Peter Godfrey-Smith's framework to develop a multilevel evolutionary analysis of the constitutional state, by affirming it as a Darwinian individual. As I see it, this multilevel perspective is fundamental to understanding why egalitarianism is a necessary foundation of modern constitutionalism, since it can be easily opted out by functionally differentiated systems for their own systemic purposes in order to work more efficiently. In order to do so, the function of constitutions in upholding cooperation and maintaining societal structure will have to be addressed. In the end, I will hold also that constitutionalism worked so well as a means to provide stability in a context of functional differentiation because its normative tenets can be easily fit within the normative structure of our universal moral grammar.

## 5.2 *The Multilevel Selection of Constitutional Societies*

Much constitutional rhetoric still relies on the ideal that constitutions are the product of an unbound constituent power, usually a reflex of the people's will.<sup>1087</sup> This idea, a reflex of the medieval theory of sovereignty, goes back in constitutional theory to the Abbé Emmanuel-Joseph Sieyès' *What is the Third Estate?* In his famous essay, he argued against the dominance of the first (clergy) and second (nobility) states, and for a prominent role for the third state, which – Sieyès argued – embodied the entire nation. As

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1086 See Hunt, L. (2008). *Inventing Human Rights: A History*.

1087 See Spång, M. (2014). *Constituent Power and Constitutional Order: Above, Within and Beside the Constitution*. Hampshire: Palgrave Macmillan. p. 28.

such, the people (the nation) had the authority and freedom to elaborate and give themselves a novel constitution, finding no limit in previous normative constraints.<sup>1088</sup>

This is an appealing ideal in the semantics of constitutional theory, but it finds little resonance within an evolutionary framework. As a dogmatic ideal of constitutional theory, it works well because it reaffirms the full closure of the legal system. Instead of relying on legitimacy through natural law, an element external to the legal system, the idea of constituent power describes a constitution as the result of popular will; once the constitution is set, all law finds its validity in the constitutional tenets.

Once we adopt an evolutionary framework, this idea makes sense only from an internal point of view (Hart) adopted from the perspective of the legal system, but not from an external, evolutionary one. Constitutions are the result of a long evolutionary path, and not (only) of a popular meeting in an assembly. My purpose, here, is to develop this hypothesis further: constitutions are adaptations to conditions of increasing functional differentiation. Obviously, this insight is not mine; Luhmann himself argued that constitutions are structural couplings between law and politics, and result from functional differentiation.<sup>1089</sup> Brunkhorst also claims that constitutions couple law with other differentiated systems, such as the economy, politics, law (reflexively) and the welfare and security systems.<sup>1090</sup> But my point departs from them insofar as I sustain that constitutional states were selected in a process of multilevel selection, responding to pressures coming both from within and from the interaction with other states and international organizations.

Stratified societies were subjected to little pressure from below that could rip them apart. The concentration of political, military and economic power in the hands of a few members of the higher strata, legitimized by a religious cosmology, virtually obstructed any attempt of structural subversion of the stratified order. The slave and peasant revolts, common during Ancient times and the Middle Ages, could hardly be seen as attempts to subvert political order, but only as efforts to change the authority in place. As Hannah Arendt correctly states, the medieval episodes of rebellion and revolt "never indicated liberations as the revolutions understood it, and even less did they point to the establishment of a new free-

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1088 See Sieyès, E.-J. (1798). *What is the Third Estate?* .

1089 See Luhmann, N. (2004). *Law as a Social System*. p. 404.

1090 See Brunkhorst, H. (2014). *Critical Theory of Legal Revolutions: Evolutionary Perspectives*. pp. 294-316.

dom," because "the aim of such rebellions was not a challenge of authority or the established order of things as such; it was always a matter of exchanging the person who happened to be in authority."<sup>1091</sup> Revolutions had a far wider scope, aiming to change not only those in charge, but to transform society itself.

In other context, David Sciulli offers one reason that could explain why revolutions were not an Ancient or Middle Ages agenda. Being functionally undifferentiated, stratified societies offered little opportunities for individuals to engage, discuss and organize themselves in coalitions strong enough that could subvert political order in a democratic fashion. This is an important point to be stated: according to Sciulli, the collegial form of organization<sup>1092</sup> is a necessary precondition for a democratic politics.<sup>1093</sup> It is also important to notice that the feasible organization of coalitions might be an important factor for upheavals to take place in our primate lineage. Among chimpanzees, for instance, coalitions are an important mean to keep the alpha male from being a bully.<sup>1094</sup>

The collegial form is the kind of organization peculiar to rule-making bodies, and encompasses not only "public and private research institutes,

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1091 In Arendt, H. (1965). *On Revolution*. New York: Penguin Books. p. 29.

1092 Sciulli defines the collegial form of organization in the following way: "Collegial formations are deliberative and professional bodies wherein heterogeneous actors and competing groups maintain the threshold of interpretability of shared social duties as they endeavor to describe and explain (or create and maintain) qualities in social life or in natural events." In Sciulli, D. (1992). *Theory of Societal Constitutionalism: Foundations of a non-Marxist Critical Theory*. New York: Cambridge University Press. p. 80.

1093 According to Sciulli: "The theory of societal constitutionalism proposes instead that shifts in the direction of social change – shifts between heterogeneous actors' and competing groups' possible social integration and their demonstrable social control – hinge on whether a distinct form of organization is, respectively, present or absent within a civil society: the collegial form. The theory of societal constitutionalism does not propose that the presence of collegial formations within a civil society guarantees that heterogeneous actors and competing groups are integrated rather than controlled. It does propose, however, that the absence of collegial formations does indeed guarantee that actors' behavioral conformity within any complex social unit, and the social order that results, are both reducible to their social control." In Sciulli, D. (1992). *Theory of Societal Constitutionalism: Foundations of a non-Marxist Critical Theory*. p. 8.

1094 See, e.g., Waal, F. d. (2007). *Chimpanzee Politics: Power and Sex among Apes*. pp. 77-136.

artistic and intellectual networks, and universities,"<sup>1095</sup> but also legislatures, courts, professional associations, unions, commissions, nonprofit organizations and even the boards of public and private corporations. Collegial formations share the following features: (i) they are permanently organized, and their very presence institutionalizes constraints on government and on other organizations such as private enterprises; (ii) they pose restraints on any exercise of collective power; and (iii) they establish a social infra-structure on which "even heterogeneous actors and competing groups might resuscitate the integrity of internal [substantive] procedural restraints on government by extending them into civil society."<sup>1096</sup> Whenever social and governmental units are organized in collegial form, they institutionalize restraints against authoritarian rulings by their very presence, insofar as they act in order to protect their autonomy by institutionalizing external (normative) procedural restraints.<sup>1097</sup> Whenever their members do not encroach against the collegial formation, they maintain the organizational integrity and, by doing so, they also impose a restraint on "any and all manifestations of social authoritarianism."<sup>1098</sup>

In this perspective, ancient and medieval societies could not uphold a democratic revolution insofar as their stratified order was functionally undifferentiated and, as a result, there was little protection to any collegial formation emerging from lower strata. Before modernity, society was based on relatively undifferentiated social systems – a monotonic social scheme in which politics, law, science, morality, religion and economics were part of a continuous flow. Law was politics, and both were entangled with morality, and moral issues were also legal and political issues. Political status granted substantial economic rights to the nobles, and being a priest also granted certain political privileges.

In that societal framework, law was itself entangled with morality, and it made sense to derive law from natural law, the law inscribed in our hearts

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1095 See Sciulli, D. (1992). *Theory of Societal Constitutionalism: Foundations of a non-Marxist Critical Theory*. p. 80.

1096 In Sciulli, D. (1992). *Theory of Societal Constitutionalism: Foundations of a non-Marxist Critical Theory*. p. 240.

1097 See Sciulli, D. (1992). *Theory of Societal Constitutionalism: Foundations of a non-Marxist Critical Theory*. p. 77. External restraints are considered normative because they are not subjected to strategic analysis, while internal restraints are substantive because they are caught by systemic rationality.

1098 In Sciulli, D. (1992). *Theory of Societal Constitutionalism: Foundations of a non-Marxist Critical Theory*. p. 82.

that derived from our nature and ultimately from God.<sup>1099</sup> However, modernity disrupted this monotonic logic. Slowly and progressively, science differentiated itself from religion, establishing a standard of truth and knowledge independent of religion. Politics, law and religion also became different regulatory spheres. The Middle Ages saw many struggles between secular power and the Church: as already mentioned, English lords barely tolerated papal intervention, and many Italian city-states fought for their autonomy against the Pope from the 11th century onwards.<sup>1100</sup>

The absence of collegial formations organizing opposition against the government and struggling for their own autonomy could hardly be an environment in which revolutions could occur. This is not the case in a functionally differentiated society, insofar as differentiation itself is a process in which the emergence of novel organizational forms, including collegial formations, is expected. And this precisely happened in the sunset of the Middle Ages, with the inception of universities, monasteries, church orders, cities, small republics, commercial guilds, and so on. Each of these meso-level (Turner) social units struggled for autonomy, institutionalizing normative restraints to assure their very existence. Soon enough, legal warranties on their existence would be formally granted, such as the formal recognition of the corporate form and freedom of association.<sup>1101</sup> Nonetheless, their formal institution would mean nothing without the existence of collegial formations acting against authoritarian attempts to use political power to destroy their autonomy (a process denominated by Sciulli as drift).<sup>1102</sup> By their 'sheer existence', as David Sciulli repeatedly affirms, the existence of collegial formations structure normative constraints and protect functional differentiation.

In David Sciulli's perspective, there can be the following kinds of constraints on the exercise of collective power: they can be external or internal, procedural and substantive, and normative or strategic.<sup>1103</sup> Substantive internal restraints are those that result from strategic rationality deriving

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1099 See Finnis, J. (2011). *Natural Law and Natural Rights*. pp. 42-48.

1100 See Berman, H. J. (1983). *Law and Revolution: The Formation of the Western Legal Tradition*, and also Thornhill, C. (2011). *A Sociology of Constitutions*. p. 50.

1101 In Brunkhorst, H. (2014). *Critical Theory of Legal Revolutions: Evolutionary Perspectives*. p. 119.

1102 See Sciulli, D. (1992). *Theory of Societal Constitutionalism: Foundations of a non-Marxist Critical Theory*. p. 41.

1103 See Sciulli, D. (1992). *Theory of Societal Constitutionalism: Foundations of a non-Marxist Critical Theory*. p. 56.



from each social system's own standards, whenever heterogeneous actors and competing groups "recognize in common, and then restrain collectively, purposeful exercises of collective power."<sup>1104</sup> According to Sciulli, substantive internal restraints are not enough to counterbalance arbitrary exercises of political power because they are designed to accommodate the interests of the involved agents, and not to curtail them. Examples of internal restraints are competition between agents (substantive/strategic) and fundamental rights (substantive/normative), including the division of powers, the separation of church and state and the distinction between public and private.<sup>1105</sup> Internal procedural restraints would include elections and legal enforcement (strategic), and legal interpretation (normative).<sup>1106</sup>

Following Max Weber, Sciulli affirms that none of these restraints could restrain effectively the action of groups because they are instrumental and, as such, subjected to the drift of rationalization, which is at the root of authoritarianism. An authoritarian social framework is defined by him as social control guided by the imposition of one systemic rationality over the others.<sup>1107</sup> Competition as such (an internal substantive strategic restraint) would not be enough to counterbalance the drift of rationalization because the most efficient forms of organization, over time, would drive other forms of organization out, imposing their own rationality over them.

The only way devised by Sciulli to avoid rationalization drift is to institutionalize external procedural restraints, through the means of collegial formations not organized around rational principles of efficiency or effectiveness, but by a primary normative orientation to keep their integrity.<sup>1108</sup> The existence of these organizations, organized under the assumption of a shared (voluntaristic, non-rational) normativity, counterbalances authoritarian tendencies of other actors and organizations. These are procedural external restraints insofar as they are oriented not by rational, systemic standards (are external to rationalization), and are organized under procedures that protect the organization's structure, since its members act in a

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1104 In Sciulli, D. (1992). *Theory of Societal Constitutionalism: Foundations of a non-Marxist Critical Theory*. p. 59.

1105 See Sciulli, D. (1992). *Theory of Societal Constitutionalism: Foundations of a non-Marxist Critical Theory*. p. 60.

1106 See Sciulli, D. (1992). *Theory of Societal Constitutionalism: Foundations of a non-Marxist Critical Theory*. p. 64.

1107 See Sciulli, D. (1992). *Theory of Societal Constitutionalism: Foundations of a non-Marxist Critical Theory*. p. 44.

1108 Sciulli, D. (1992). *Theory of Societal Constitutionalism: Foundations of a non-Marxist Critical Theory*. p. 162.

way that preserves the integrity of the organizational form irrespective of the subjective interests of affiliated actors and groups and their own substantive projects.<sup>1109</sup>

David Sciulli believes that constitutional restraints such as fundamental rights and institutional constraints as the separation between church and state or the separation of powers are substantive and internal, but they do impose external and procedural limits on rationalization drift. And constitutions do so owing to the fact that they were precisely selected *for* institutionalizing these limits.

My argument will become clear in the next sections: the sociological conditions present at the dawn of modernity favored the selection of national states structured by constitutions which imposed external and procedural legal constraints that enabled the development of other organizations, fostering specialized communications and stabilizing the emergence of distinct social systems.

In order to justify this claim, I assume that constitutions are the result of multilevel selection. At the macro-dynamic level (Turner), constitutions are structures that institutionalize the boundary between a national political system and the international legal order, structuring constitutional societies as Darwinian individuals vis-à-vis other states and international organizations. Meso-dynamically, constitutions institutionalize the legal framework for the operations between law itself and other social systems on the condition of functional differentiation, by structuring external constraints on the performance of other differentiated social systems whose organizations are operating on the edge of a particular constitution. The delicate balance between constitutional regulation and the struggle of autonomy coming from the various other organizations can define the successful functional integration of the constitutional society and the odds of its selection as a Darwinian individual.

Microdynamically, constitutions build workarounds on human social psychology that drives our tribal social instincts to cooperate in a functionally differentiated society, normatively organized under the tenets of constitutional rights. By organizing social relations under constitutional symbolic markers that evokes assumptions of universal freedom and equality, our psychological dispositions against inequality (Boehm) and to cooperate with in-group members are triggered in a way that predispose pro-social behavior in a degree never seen before. As a result, constitutions allow

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1109 Sciulli, D. (1992). *Theory of Societal Constitutionalism: Foundations of a non-Marxist Critical Theory*. p. 82.

for the emergence of again egalitarian polities, albeit in foundations much more complex than those seen in hunter-gatherer bands.

### 5.3. Constitutional Societies as Darwinian Individuals

Medieval Europe was a huge experiment field for a Darwinian group selection enthusiast. By the 12th century, Europe was ruled by almost five hundred sovereign bodies, ranging from federations of cities, religious orders, city-states, networks of feudal landlords and feoff holders, kingdoms and empires. According to Charles Tilly, "the Italian Peninsula alone boasted two or three hundred distinct city-states. Around 1490 (...) South Germany alone included 69 free cities in addition to its multiple bishoprics, duchies, and principalities," and Europe's 80 million people were "divided into something like 500 states, would be states, statelets, and statelike organizations."<sup>1110</sup> Europe was divided in (about) 25 states by 1990, whereas the United Nations records 193 member-states as I write. But how did states become the main political body of Europe and, ultimately, of the world?

The economist Samuel Bowles proposes a group-selection hypothesis<sup>1111</sup> to explain the success of the national state: the state remained as a political form because it endured against other political forms in conflicts. The national state was better capable to mobilize financial resources, organize armies and win wars, while maintaining an economic system healthy enough to provide the goods necessary to maintain population growth.<sup>1112</sup> Bowles' thesis is based on an explicit group selection perspective. In his view, the national state emerged because of its success in war and, as a result, it was either imposed to or emulated by other societies. As a conse-

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1110 In Tilly, C. (1975). *The Formation of National States in Western Europe*. Princeton: Princeton University Press. p. 43.

1111 Bowles is explicit on this point, stating that the evolution of the national state is a case of group selection. "A group selection account of the diffusion of the norms associated with the national state is the following. The national state evolved because it won wars with competing organizations, and the ability to win wars depended on its peculiar ability to mobilize soldiers and other military resources. This ability depended on the extent of commerce and credit, tax compliance, and the willingness to serve rulers in war." In Bowles, S. (2001). Individual Interactions, Group Conflicts, and the Evolution of Preferences. In Durlauf and Young (Eds.), *Social Dynamics*. Cambridge: MIT Press. p. 166.

1112 See Bowles, S. (2012). Warriors, Levelers, and the Role of Conflict in Human Social Evolution. *Science*, 336(6083), 876-879.

quence, the national state led other forms of political organization to extinction.

I agree partially with Samuel Bowles. The evolution of the national state (I will focus more on the idea of a constitutional society) can be understood as a group selection process – or, as I will argue, more properly as a case of multilevel selection process –, but the explanation provided by Bowles is far too simplistic. He attributes too much weight to just one factor – war –, disregarding the very social conditions of Europe at the sunset of the Middle Ages and, as a consequence, he mixes up many different forms of political organization, including in the same kind (state), not only the modern constitutional state but also pre-modern states.

The modern constitutional state is radically different from pre-modern states and cannot be confused with them because it is a product of modernity and functional differentiation. Not acknowledging the difference between these political forms would be a huge mistake.

Consider, for example, the case of the Chinese Empire, which, during the Ming Dynasty rule by the 15th century, was the largest and most developed Empire on Earth. At that time, Nanjing had a population of between 500,000 and 1,000,000, while, at the same time, London's population was of about no more than 1/5 of that.<sup>1113</sup> By 1420, any comparison between London and Nanjing would be misleading, due to the splendor and impressiveness of the Chinese city – and not only Nanjing, but also the Chinese state as a whole when compared to Europe at that time. The Chinese were ahead of Europe even in terms of inventiveness, having invented the mechanical clock, the printing press with movable type, the seed drill, the plough and even the spinning wheel, a symbol of the industrial revolution, much before than Europeans.<sup>1114</sup> The Chinese production of iron in the 11th century would not be matched by "Europe as a whole (...) until 1700"<sup>1115</sup>, and its navy was the world's largest, composed by more than 300 ships and a crew of 28,000 men.<sup>1116</sup> In perspective, by 1492, Christopher Columbus crossed the Atlantic in four ships and less than 120 men.<sup>1117</sup>

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1113 See Ferguson, N. (2011). *Civilization: the West and the Rest*. pp. 22-23.

1114 See Ferguson, N. (2011). *Civilization: the West and the Rest*. pp. 27-28.

1115 In Wright, R. (2001). *Nonzero: the Logic of the Human Destiny*. New York: Vintage Books. p. 159.

1116 Ferguson, N. (2011). *Civilization: the West and the Rest*. p. 28.

1117 Tirado, T. C. (2000). *Christopher Columbus* Encarta: Microsoft.

By the 15th century, China had complete economic and technological advantage over Europe. It was more organized politically and had a centralized government. However, little more than four centuries later, in 1842, English gunboats blocked Nanjing's docks in retaliation for the destruction of opium stocks and the Royal Navy demanded monetary compensation, open ports to British commerce and control over the city of Hong Kong as reparation. If the only factor at stake were state power, and if all kinds of state were the same, this outcome would have been unlikely. Being more advanced technologically, the Chinese would probably have kept its edge and have at least resisted European invasion – if not, in an imagined scenario, invaded Europe itself.

There was a fundamental difference between China and Europe at the dawn of modernity. Despite being able to achieve great high levels of productivity and centralized resource exploitation, China failed to differentiate its economic system. The Chinese Empire under the Ming Dynasty was still a pre-modern, undifferentiated high culture.<sup>1118</sup> All social action was coordinated under the orders of the Emperor and interpreted within a moralistic symbolic framework, unbound by a legal system and unaccountable before its subjects.<sup>1119</sup> As a result, economy, science, education and all other social systems had no autonomy and remained undifferentiated, determined by moralistic-based political power ruled by a strictly hierarchical Confucian bureaucracy. This is part of the reason why China failed vis-à-vis European countries in the interregnum between the 15th and 20th century. Being a stratified moralistic state, whose Emperor controlled every social domain, its economy could not stand against his decree to close Chinese ports. Later on, the Emperor decreed a ban on oceanic

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1118 See Parsons, T. (1966). *Societies: Evolutionary and Comparative Perspectives*. pp. 75-77.

1119 As Francis Fukuyama states, the Imperial basis of legitimation was moral, but not strictly religious: "China was different from all of these other civilizations insofar as the Mandate of Heaven involved neither election nor religious legitimation. There was no Chinese institutional equivalent of the Estates-General by which the elites of Chinese society could meet to formally ratify the selection of a new dynastic founder. Nor was there religious legitimation awarded by a religious hierarchy. There was no transcendental God in the Chinese system. The 'heaven' in the Mandate of Heaven was not conceived of as a deity in the sense of the monotheistic religions Judaism, Christianity, and Islam, which laid down a clear set of written rules. Rather, it was more like Nature or the 'grand order of things' that could be upset and required a return to equilibrium." In Fukuyama, F. (2011). *The Origins of Political Order: from Prehuman Times to the French Revolution*. p. 300.

voyages and punished with death the building of ships with more than two masts.<sup>1120</sup>

Unlike the monochromatic China, no king had the political power to forbid all economic activity at once in Europe. With so many political orders clashing in a comparatively small territory, the odds that one kingdom or city-state would support a specific commercial enterprise were higher than anywhere else. This is precisely what happened with Christopher Columbus, who had begged for support to his quest from Portugal, Genoa and Venice before having the financial grant conceded by Ferdinand II of Aragon and Isabella I of Castile.

Niall Ferguson argues that one of the reasons why the West gained prominence over the East during Modernity was due to the competition resulting from the European social environment. He even frames the process in terms of multilevel selection, highlighting, "among other things, this multi-level competition, between states and within states – even within cities" as a major cause of the evolution of modern institutions.<sup>1121</sup> Besides that, other features of Western societies – Ferguson argues – paved the road to the West's domination, including not only competition, but also the development of science, property, medicine, a consumer society and a work ethics.<sup>1122</sup>

Ferguson's interesting insight ultimately describes the process of functional differentiation occurring during early modernity. Europe prospered due to its institutional success in steering and responding to the emergence of distinct social systems without losing its own social integration. And European nations managed to do so because they developed institutional arrangements that coped successfully with problems arising from functional differentiation, integrating their political and legal institutions with scientific, economic and religious organizations within normative standards that maintained the stability and fostered the autopoiesis of each system by affirming their normative autonomy.

This is an important point to be discussed in view of the fact that, from an evolutionary perspective, functional differentiation also increases the risk of social disintegration. As mentioned in the discussion on the emer-

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1120 See Ferguson, N. (2011). *Civilization: the West and the Rest*. p. 32.

1121 See Ferguson, N. (2011). *Civilization: the West and the Rest*. p. 41. In this specific passage, Niall Ferguson is explaining the spread of the mechanical clock in Europe, but the mentioned terminology could be referred to in his framework to explain the evolution of Western institutions.

1122 See, generally, Ferguson, N. (2011). *Civilization: the West and the Rest*.

gence of collective Darwinian individuals, there is an inherent evolutionary conflict between the higher-level entity and its constitutive parts (section 3.1.3). The emergence of a collective individual depends on the suppression of evolution (de-Darwinization) occurring at the lower-levels. Otherwise, reproduction occurring at the lower-level parts of the system would disrupt and subvert the cohesiveness needed for the emergence of a higher-level individual.

John Maynard Smith and Eörs Szathmáry propose four mechanisms that could do the job of suppressing the autonomous evolution of the lower-level components of a collective evolutionary system: kin selection, the extent of the division of labor between soma and germ, contingent irreversibility and central control. My argument is that constitutions perform two of those functions (structuring kin selection and central control) at the societal level, producing the integration needed for the emergence of a novel Darwinian individual – the constitutional society –, in a multilevel selection process. A multilevel selection hypothesis of the constitutional society's evolution depends on explaining how the emerging Darwinian individual better adapts to its own environment while, simultaneously, coping with internal pressures coming from its internal parts against integration.

Before discussing this point, I must clarify what is to be understood as the environment of the constitutional society and how functional differentiation relates to their individualization as Darwinian individuals in the context of a world society.

These issues result from Luhmann's description of modern society as a world society. All communications are entangled within a single all-embracing social context, which is primarily differentiated in functional systems.<sup>1123</sup> Unlike the older stratified societies, which could be conceived of as closed societies, modernity is built on the assumption that communication is global and cannot be switched off as merely regional problems. More and more, economic issues are not regional anymore, as the stock market crashes remind us periodically. Political problems are also global, insofar as they become thematized as human rights issues and, as such, as universal problems to be dealt with. And the same occurs within the scientific domain, since scientists all over the globe interact and do their research regardless of territorial borders. As Luhmann affirms, "[f]or func-

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1123 See Neves, M. (2015). Os Estados no Centro e os Estados na Periferia. *Revista De Informação Legislativa*, 52(206), 111–136; Luhmann, N. (2006). *La Sociedad Mundial*; Luhmann, N. (2013). *Theory of Society*. p. 129.

tional systems geared to universalism and specification, spatial boundaries make no sense."<sup>1124</sup>

Acknowledging functional differentiation as a feature intrinsic to world society is compatible with regional variation. Luhmann's systems theory is highly sensitive to this point, acknowledging that some problems arise as a result of the asymmetrical development of the world society in different regions of the globe.<sup>1125</sup> World society also has its centers and peripheries, and they are built around the territorial segmentation of political and legal systems in the form of states.<sup>1126</sup>

Admitting the existence of world society, then, is not an objection of the emergence of states as segmentary organizations of the political and legal system. Departing from this intuition, I want to explore further two points related to the relation of states to world society, which are acknowledged by Luhmann himself in the above-mentioned quote. According to him, there is not only *competition between states* (for capital for regional investment, in his example), but also *the political system of world society can be conceived of as a system of states*. Of course, the political system of world society is not only a system of states, insofar as other organizations such as the United Nations and other international organizations also play an active

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1124 In Luhmann, N. (2013). *Theory of Society*. p. 129.

1125 See Neves, M. (2015). *Os Estados no Centro e os Estados na Periferia*. p. 112.

1126 In Luhmann's words: "The observation that global and regional optima diverge markedly is a better point of departure. This is likely to be because world society does not control itself through goals or norms or directives whose regional compliance can then be checked and if necessary corrected, but because the centers of world society (above all, of course, international financial markets) generate fluctuations that lead regionally to dissipative structures and to the need for self-organization. This can occur in the economic system through business enterprises but also investment funds, which in turn influence regional possibilities for production and work. [...] Above all, the continued existence of nation-states means that regional interests are brought to bear and hence strengthened within world society and through the exploitation of its fluctuations. States compete, for example, on the international financial markets for capital for regional investment. This difference between global and regional is particularly apparent when we look at the state, even if the political system of world society is a system of states, and this no longer permits individual states to be considered as entities in isolation." In Luhmann, N. (2013). *Theory of Society*. p. 129.



role that should not be neglected.<sup>1127</sup> Nonetheless, the state is undeniably one important element of world society.

The construction of world society as such is a result of functional differentiation. As Brunkhorst describes it, the evolutionary process that led to the origins of constitutional statehood also built cosmopolitan statehood, an international legal order. In my perspective, this is a result of a niche construction process. The progressive evolution of the state as a Darwinian individual also led to the construction of an international legal order that had the evolutionary feedback effect of functioning as a political and legal environment in which a particular kind of state was further selected.

Niche construction, as defined by Laland, Odling-Smee and Marcus Feldman, refers to the activities, choices and processes through which organisms create their own niche,<sup>1128</sup> engineering their own ecosystem. Organisms can construct a niche in ways that counteract natural selection (for instance, by digging a hole and nesting within it in order to avoid cold), or may introduce novel selection pressures. There is evidence, for instance, that the construction of burrow systems by some mammal species affect the evolutionary pressures upon the species.<sup>1129</sup>

The coevolutionary process between national and cosmopolitan statehood described by Brunkhorst could be understood as a case of niche construction. The emergence of statehood in Europe not only led to a new form of political organization (the state), but also to a novel structure, which progressively evolved from *ius gentium* to international law - what

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1127 See, on this point, Neves, M. (2013). Transconstitutionalism; Teubner, G. (2003). *Societal Constitutionalism: Alternatives to State-Centered Constitutional Theory?* Storrs Lectures. Yale Law School.

1128 See Laland, K. N., Odling-Smee, J. and Feldman, M. W. (2000). Niche construction, biological evolution, and cultural change. *Behavioral And Brain Sciences*, 23(1), 131-175.

1129 As Laland et al. state: "The construction of artifacts is equally common among vertebrates. Many mammals (including badgers, gophers, ground squirrels, hedgehogs, marmots, monotrema, moles, mole rats, opossums, prairie dogs, rabbits, and rats) construct burrow systems, some with underground passages, interconnected chambers, and multiple entrances (Nowak 1991). Here, too, there is evidence that burrow defence, maintenance, and regulation behaviours have evolved in response to selection pressures that were initiated by the construction of the burrow (Nowak 1991). In many of these examples there is strong comparative evidence suggesting that nest building is ancestral to the nest elaboration, defence, and regulatory behaviour (Hansell 1984; Nowak 1991; Preston-Mafham & Preston-Mafham 1996)." In Laland, K. N., Odling-Smee, J. and Feldman, M. W. (2000). Niche construction, biological evolution, and cultural change. p. 133.

Brunkhorst calls the *co-originality of an international order and of a legal order of particular states*.<sup>1130</sup> Progressively, the legal framework institutionalized in the international level imposed novel normative constraints on states, channeling their evolution. Of course, international law does not affect and involve only states, but, as Teubner brilliantly exposes, it is also construed by all kinds of organizations.<sup>1131</sup> My point, here, is to affirm international law as an important environment of constitutional society.

The Protestant Revolution, for instance, implemented a system of confessional territorial states and cities, founded on the equal sovereignty of princes and magistrates.<sup>1132</sup> Accordingly, *ius gentium* recognized each state's sovereignty within its own territory, stabilizing a legal framework that granted autonomy for the novel political unity. First of all, the Peace of Westphalia marked the beginning of a system of sovereign territorial nation-states, by stabilizing the border of European nations and some principles of international law. Secondly, the free exercise of religion began a process of institutionalization, from the Peace of Augsburg's principle that the monarch had the right to choose a religion and impose it on the state's populations (*cuius regio eius religio*) to the religious right to assemble according to one's faith, established after the signature of the *Pax Westphalica* treaties. As Berman notes, "[t]he non-established religious confessions, whether Protestant or Roman Catholic, were given the right to assemble and worship as well as the right to educate their children in their own faith. Thus, a principle of religious toleration was established between Lutherans, Calvinists, and Roman Catholics."<sup>1133</sup> It is worth noting that the international legal framework can also be seen as a consequence of the direct conflict between states. A major example of this thesis would be the Peace of Westphalia treaties, which ended the brutal Thirty Year's War.

As a result, the novel international legal framework can be seen both (i) as a consequence of direct group (structural) selection between states, with the affirmation of territorial sovereignty as a measure to end the controversies and structurally affirm states as *legal* and *political* individuals, and also (ii) as a result of the kind of external constraint mentioned by David Sciul-

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1130 See Brunkhorst, H. (2014). *Critical Theory of Legal Revolutions: Evolutionary Perspectives*. p. 74.

1131 See, e.g., Teubner, G. (2003). *Societal Constitutionalism: Alternatives to State-Centered Constitutional Theory?*.

1132 See Brunkhorst, H. (2014). *Critical Theory of Legal Revolutions: Evolutionary Perspectives*. p. 214.

1133 In Berman, H. J. (2003). *Law and Revolution II: the Impact of the Protestant Reformations on the Western Legal Traditions*. pp. 61-62.

li. The very existence of states, given a reasonably equitable distribution of power between them, imposed constraints on the action of others against each state's sovereignty. In a sense, then, Westphalia Peace achieved a state of Nash Equilibrium in European international politics, institutionalizing the best response to each nation's best strategic alternatives.

At first, as a strategic arrangement, it could be only conceived of as an internal substantive constraint – or, in Rawls's terms, a constitutional consensus.<sup>1134</sup> Over time, however, the conceptualization of people's sovereignty as the foundation for the political power at the level of the

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1134 Here, I apply Rawls's ideal of constitutional consensus in a different context. In his original idea, developed in *Political Liberalism*, constitutional consensus occurs in a situation where lack of political, social or psychological forces render overlapping consensus unviable. In this situation, the parties in the original position could at least agree strategically on certain principles in order to organize political life and grant a minimum principle of political toleration. Later on, once the constitutional consensus is in place, the groups must discuss matters of interest to all and, as a result, must develop a deeper foundation for political institutions, based on principles of fairness and on an ideal of public reason. Over time, the narrow constitutional consensus could develop into an overlapping consensus. See Rawls, J. (2005). *Political Liberalism*. pp. 158-168. Here, I suggest that a similar process could happen in international law, starting out from a narrow consensus on some toleration rules based on mutual sovereignty recognition and developing itself, much later on, into an almost full constitutional system such as today's European Union. In a similar vein, Dieter Grimm argues that this is the case – even though EU lacks popular sovereignty as a foundation for its constitutional order: "If we ask this question first of all concerning the EU, we find a structure that has grown far beyond traditional international organizations but has still not become a state. It unites a considerable number of sovereign rights in different political fields that can be exercised with immediate validity in the member states. Even without a monopoly on the use of force, which its members so far retain, it is closely interwoven with the member states and their legal orders in a way similar to the national and the member states in a federal state. The resulting need for a juridification of the public power has surely long since been satisfied. Primary Community law, which spread step by step, has overlain the EU with a tightly-woven net of provisions that have pre-eminence over the Secondary Community law produced by the EU and fulfills most of the functions of constitutions in the member states. Measured by the demanding concept of the constitution that has become the standard since the American and French Revolutions, they lack only one element – which, however, is surely essential. They are, not only in their development but also according to their legal nature, international treaties that have been contracted by the member states. So, they can only be altered by them in the intergovernmental Conference, which is not an EU organ, with subsequent ratification within each member state. The public power the EU exercises accordingly emanates not from the people, but from the

constitutional state could work as a reconceptualization of political states organized as collegial formations (legislatures as a proxy to popular will) struggling for their own autonomy. Even though political organs can be subjected to what Sciulli would call rationalization drift, insofar as they are a means to institutionalize the systemic rationality of politics, whenever they are constrained by legal constitutions, their performance assures the autonomy of the constitutional state and, ideally, popular sovereignty. Being unconstrained, political power could become authoritarian – the same point liberals have argued for a long time.

From an evolutionary point of view, the affirmation of the state as a sovereign legal form was important because it institutionalizes a boundary between the state as an organization and its environment – an important step to the construction of an integrated Darwinian individual.<sup>1135</sup> State constitutions are the *internal* side of the state's construction as an integrated and sovereign organization, insofar as they structure not only the normative framework on which law and politics are to perform their own social functions, but they also set the normative parameters that all other systems must observe in order to cope with a specific constitutional state. Even in a world society, the legal and constitutional constraints adopted by a particular polity can structure the relations between law, other states and the other functional systems in many different ways.

Since different states can impose slightly different normative regulations on other social systems, they react accordingly, resulting in very different local economic, political and social outcomes. In this sense, even if society can be described sociologically as a world society because communication is distributed globally, the regional interactions that result from the interaction between national states and the segmented units from all social systems produce more or less efficient communications as evaluated within each systemic domain. The result of this process is that there is both *varia-*

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member-states. Responsibility for the basic order that sets its goals, establishes its organs, and regulates its authorities and procedures, cannot be ascribed to the constituent power of the people. Nor is any EU organ that represents the people responsible for it. As distinct from the constitution as the basic legal order of states, it is heteronomously, not autonomously, determined (see Grimm 1995a). Not being attributed to the people, it lacks democratic origin, which is an element of a somewhat meaningful notion of constitution." In Grimm, D. (2006). Can the 'Post-national Constellation' be Re-Constitutionalized. *Working paper*, 1-30.

1135 See Godfrey-Smith, P. R. (2009). Darwinian Populations and Natural Selection. p. 93.

tion (V) not only between states, but also between the cluster composed by states and other organizational units (businesses, universities, unions, etc.) affected by particular states that produce, over time, regional differences in economic, scientific, political and legal results.

Seen from this perspective, world society is an environment constructed not only by the states, but also by all social systems, encompassing all forms of communication (memetic transmission). As such, it is not – in principle – subject to Darwinian processes of selection, insofar as there is no form of selection external to it. However, world society can be regionally differentiated in clusters that become Darwinian individuals in their own right, embracing communications associated to organizations producing information related to many different functional social systems and which become, over time, functionally coupled pretty much like symbionts. The political state couples itself with businesses (economic system) through the central bank and other forms of economic regulation, and with universities (science), schools (education), hospitals (medicine), churches (religion) through the means of *law* and, more specifically, *constitutional law*. These regional clusters produce local cooperative units which constitute specific Darwinian individuals, functionally differentiated and which respond evolutionarily to world society as their environment. *As a direct consequence, these clusters reproduce functional differentiation within their local sociological reality.*

In the lack of a better concept, I will call these 'clusters' constitutional *societies*, consciously assuming the risk to be terminologically imprecise. According to Luhmann, this would be mistake, since "a multiplicity of societies is conceivable only if there are no communicative links between them."<sup>1136</sup> Even though I assume communication between different state nations as an obvious departure point, and therefore I agree with Luhmann on the idea of a world society – as functional differentiation turned most communications across social systems global –, it must also be acknowledged that local sociological realities also constitute regional cooperative units. *In this sense, the concept of constitutional society as I am referring to is not related to communication as such, but to cooperation.* Constitutional societies are those in which specific constitutional arrangements specify the local relationships between social systems cooperatively, in such a way that they can operate autonomously.

As Brunkhorst proposes, the birth of cosmopolitanism was co-original with the origin of national statehood; the universal character of the world

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1136 In Luhmann, N. (2012). *Theory of Society*. p. 40.

society is built upon regional, local structures of cooperation. As a result, we must speak of two mutually dependent and interconnected societies, the world society, which encompasses all forms of communication, and constitutional societies, which embraces local communications, structurally bounded by a legal constitution. Of course, there is no need to restrict the concept of constitution to regional constitutions. World society can also be structured by a constitutional framework, such as the UN Charter, the Universal Declaration of Human Rights and all its international organizations' infrastructure, including the normative framework produced by private actors.<sup>1137</sup>

Usually, the term state is assigned to define an organization of the political system alone. This is why I prefer to adopt the concept of *constitutional society*, insofar as the selected unit is not only the political organization (the state), but the cluster composed by the state and all the organizations directly and locally regulated by the legal institutions linked with that particular state via the national constitution. In this sense, I disagree with Hodgson and Knudsen's emphasis on the selection of the state as the interactor resulting from a major transition caused by the evolution of judicial law.<sup>1138</sup> According to them, the creation of a legal system transformed the national state into an overarching system of rules containing all other organizational interactors (organizational units) and social replicators *within* itself. *Inside* the state, there would be competition for resources between organizations from all social systems, while, on a higher level, selection would operate between states through military or economic competition.<sup>1139</sup>

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1137 See, on this point, Teubner, G. (2012). Constitutional Fragments: Societal Constitutionalism and Globalization; Neves, M. (2013). Transconstitutionalism.

1138 See Hodgson, G. M. and Knudsen, T. (2010). Darwin's Conjecture. p. 199.

1139 In their own words: "Crucially, the creation of a legal system means that there is an overarching system of rule enforcement that guides the operation of other institutions or systems or rules and interacts with custom. States with legal institutions provide a framework within which customs and other organizations operate. The state and the judiciary are higher-level interactors, containing further nested organizational interactors and social replicators on multiple levels. Selection operates on interactors below the state itself through competition for resources or power or the decisions of the courts (Commons 1924). Selection operates on states through military or economic competition with other states." In Hodgson, G. M. and Knudsen, T. (2010). Darwin's Conjecture. p. 205.

According to this reading, the legal and political state is the Darwinian individual and all other social organizations are nested within it. As a result, there would be no functional differentiation, but only a stratified society in which the political system would be identified with society itself and would hierarchically dominate all other functional systems. I disagree with their reading, since the modern constitutional state is not the equivalent of society, but only an (albeit very important) organization from the political system, which, under the conditions of functional differentiation, cannot *control* the operations of other social systems. The political state and the courts, respectively through positive law and judicial rulings, can *steer and influence* the environment for the operations of all other systems, but they cannot determine how businesses, universities, hospitals and other organizations will respond to their decisions. Modern society is heterarchical, not hierarchical.<sup>1140</sup>

Nonetheless, I have no doubt that Hodgson & Knudsen's selectionist intuition is essentially correct. There is "military or economic competition" – however, not only between *states*, but between *constitutional societies* – packs of organizations *cooperatively* arranged and structurally *organized* by a *legal constitution*. Each of these clusters achieve different economic, scientific, political, educational (and so on) results over time, resulting in very different fitness for the "package" as a whole (which we have inadvertently had the habit of calling countries, nations and so on). And each organization, related to every social system, being the environment for all other organizations, affects the outcome of all other organizations. The educational output of schools in a country, for instance, is affected by the regulations enacted by the elected legislators and bureaucratic specialists and, as a result, affects the quality of the labor market, resulting in a more or less efficient economy.

As a result of institutional and cultural diversity, maintained through conformism and legal punishment, different constitutional societies structure and follow different paths, producing a pluralism of constitutional identities. As Michel Rosenfeld notices, there are many different archetypes of constitutionalism: while the French constitutionalism is based on a strong expression of the people's will, the American constitutional identity is backed on a strong reliance on checks and balances and the German constitutionalism could be featured as the expression of a

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1140 See, on this point, Neves, M. (2013). Transconstitutionalism. p. 25; Luhmann, N. (2012). Theory of Society. p. 91.

communitarian ethos.<sup>1141</sup> Even if his stereotyped description might be criticized, he is right to affirm a wide variation in constitutional identities – or, in the terms herein proposed, in the structuration of constitutional societies and their relationship with local culture.

When compared to other 'countries', one constitutional 'package' produces very different outcomes from the others, resulting in fitness differences as a result of the intrinsic features of the composition of the group – one feature of a Darwinian individual, Fitness and Intrinsic Character (S), which accounts for the "extent to which differences in reproductive output in a population depend on intrinsic features of the members of the population"<sup>1142</sup> Even though states do engage in wars, economic competition does not take place between them, but between business firms.<sup>1143</sup> There is also differential fitness in scientific prowess, political influence, educational skills, and so on. In this sense, competition between societies occurs in many different levels, for resources relative to all social systems.

Up to this point, however, these differences in result would be the outcome of functional adaptations operating at the level of the lower-level or-

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1141 See Rosenfeld, M. (1994a). The Identity of the Constitutional Subject. *Cardozo Law Review*, 16, 1049–1109; Rosenfeld, M. (2004). A identidade do sujeito constitucional e o Estado democrático de direito *Cadernos da escola do Legislativo*, 7(12); Brugger, W. (2004). Communitarianism as the Social and Legal Theory behind the German Constitution. *International Journal of Constitutional Law*, 2, 431–460.

1142 See Godfrey-Smith, P. R. (2009). Darwinian Populations and Natural Selection. p. 53.

1143 See, e.g., Nelson & Winter's evolutionary approach toward economic change: "We have already referred to one borrowed idea that is central in our scheme – the idea of economic 'natural selection.' Market environments provide a definition of success for business firms, and that definition is very closely related to their ability to survive and grow. Patterns of differential survival and growth in a population of firms can produce change in economic aggregates characterizing that population, even if the corresponding characteristics of individual firms are constant. Supporting our analytical emphasis on this sort of evolution by natural selection is a view of 'organizational genetics' – the processes by which traits of organizations, including those traits underlying the ability to produce output and make profits, are transmitted through time. We think of organizations as being typically much better at the tasks of self-maintenance in a constant environment than they are at major change, and much better at changing in the direction of 'more of the same' than they are at any other kind of change. This appraisal of organizational functioning as relatively rigid obviously enhances interest in the question of how much aggregate change can be brought about by selection forces alone." In Nelson, R. R. and Winter, S. G. (1982). *An Evolutionary Theory of Economic Change*. pp. 9–10.



ganizations (MLS1 selection mode), not the consequence of an adaptation of the group constituted as such – the *constitutional society as a Darwinian individual*. So far, my argument might be understood in the following terms: a constitutional society is one set of organizations instantiating systemic communications operating at a local level that achieve different results and, as a consequence, the clusters that produce better overall results are selected while the others perish or are replaced, subjugated, or colonized by imperialistic more adapted constitutional societies, producing centers and peripheries in world society.<sup>1144</sup>

My argument goes further than that. A constitutional society is *not only a cluster of organizations*, since it possesses *at least one* adaptation at the societal level - the *political and legal constitution*.<sup>1145</sup> As Godfrey-Smith asserts, an *integrated* Darwinian individual is one in which there is division of labor (in other ways than the germ/soma division), mutual dependence of parts, and a boundary between the individual and its environment.<sup>1146</sup> The constitution is one essential feature of modern democratic societies under the conditions of functional differentiation because it provides the integration between organizations performing different tasks for the whole constitutional society, generating a strong mutual interdependence between the parts. Beyond that, a constitution also structures the relationship be-

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1144 Ugo Mattei and Laura Nader argue that the rule of law provides legitimation for the usurpation of world wealth by richer imperial countries. See, for instance, the excellent Mattei, U. and Nader, L. (2008). *Plunder: when the rule of law is illegal*. Main Street (MA): Blackwell Publishing. Although I think that their reading might sound a bit naïve at first, a functional selectionist reading might sound more plausible. The rule of law, and constitutionalism, equipped some countries to better explore the wealth of others in their own favor. This can be seen as one of the dark sides of constitutionalism. In the same vein, Brunkhorst argues that colonialism and imperialism were the direct results of the Protestant Revolution and the World Atlantic Revolution, two of the main constitutional revolutions in his perspective. See Brunkhorst, H. (2014). *Critical Theory of Legal Revolutions: Evolutionary Perspectives*. p. 202.

1145 My point is not that the legal and political constitution is the only adaptation at the societal (structural) level any particular society has, since there are other structural features, such as its market-oriented infrastructure (economy) or its legitimacy foundation reinforced formally and informally in schools, families and other contexts (see, on this point, Callan, E. (1997). *Creating Citizens: Political Education and Liberal Democracy*). Instead, the point to be underlined is that the constitutional framework is one relevant and indispensable adaptation.

1146 See Godfrey-Smith, P. R. (2009). *Darwinian Populations and Natural Selection*. p. 93.

tween a constitutional society and world society, its environment. As a result, being integrated by a constitutional framework, a constitutional society can be understood as a full (MSL-2) Darwinian entity – one sufficiently cohesive individual capable of producing its own offspring through its own development and persistence.<sup>1147</sup>

From a sociological perspective, societal complexity demanded that social systems became differentiated to cope with internal sophistication. The entire process might be understood as the result of selection between societies that could better address complex sociocultural environments. Social structures that remained dependent on an undifferentiated cultural background were erased from the meme-pool, whereas social structures that deepened the differentiation processes while being coupled with the other social (cultural) systems were selected because they provided a more stable framework. Soon enough, the socially fragmented legal, political and economic structure of the Middle Ages could no longer accommodate the demands of modern society for a more stable legal framework that would support a pluralistic society whose economic needs demanded stability and autonomy from religion and morality.

Luhmann's thesis about constitutionalism precisely describes how this differentiation process occurred from a social (cultural) perspective. He adopts the approach of a sociologist and must describe it from this viewpoint, according to which the very selection of the word 'constitution' among other possibilities such as 'fundamental law', 'social contract' or 'social covenant' is a fact that must be explained. The concept of constitution was not exactly new in political philosophy, but the meaning of the term went through a profound transformation during the 18th century. Before that, the idea of constitution had been understood in political thought as the body of the political organization, such as in Aristotelian thought or in the medieval and early modern political philosophy use of the word. Other conceptual roots of the term included its usage to describe written laws passed by legislative bodies, such as statutes, decrees and ordinances.<sup>1148</sup> These conceptual usages remained separately applied to either the political (the body analogy) or the legal domain (the reference to diverse types of statutes) in different contexts, but only in England did the Constitution become simultaneously the supporting principle of both law

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1147 As discussed in chapter 3, the replication parameter in social units can be sufficiently satisfied if the unit can persist over time, being replicated through its own pattern-maintenance.

1148 See Luhmann, N. (2004). *Law as a Social System*. p. 405.

and politics,<sup>1149</sup> and only after the American Revolution – and particularly after *Marbury v. Madison* in 1803 – did the explicit use of a constitution to check the validity of a particular norm passed by a legislature turned out to be possible.

Instead of a description of the organization of a political body, the new concept of constitution was normative. Aristotle or Machiavelli would not recognize the legal use of the constitution to affirm that a statute was null and void under its terms because their concept of constitution only described how politics was organized. In the classical and medieval worlds, the only way to hold a statute invalid was to sustain its essential injustice due to its incompatibility with natural law. After the constitutional revolutions, the normative evaluation of law became secularized because the entire legal system became autopoietic. Instead of relying on an external foundation (natural law), it could rely on an internal source of validity – the constitution. The same process occurred in politics: before the development of the modern concept of constitution, modern political thought relied on the idea of sovereignty, a metaphysical account about the source of a ruler's power. In the 18th century, the ruler himself became subject to constitutional limits – an idea that began to be developed with the Glorious Revolution in England in 1668-89.<sup>1150</sup>

How exactly do constitutions functionally integrate so distinct organizations? As discussed in chapter 4, the macro-dynamic function of law is structural: being normatively binding, it fixes social structure over time, by stabilizing normative expectations (Luhmann) and fixing a specific set of social roles (Hodgson & Knudsen). In stratified societies, this can be catastrophic for those living in the peripheries of the lower social strata, insofar as the fixed social structure is intrinsically hierarchical. Under the stratified conditions of pre-modern empires, political participation was allowed only for those included in the upper strata, while those living in the lower strata were only addressees of their decisions. Accordingly, the intertwining between the economic domain (*oikos*) and other institutions meant that the economy could not develop autonomously, insofar as it had to fulfill other

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1149 See Luhmann, N. (2004). *Law as a Social System*. p. 405. See also Ball, T. and Pocock, J. G. A. (1988). *Conceptual Change And The Constitution*. Lawrence: University Press of Kansas. pp. 4-5.

1150 See Dippel, H. (2005). *Modern Constitutionalism: an Introduction to a History in Need of Writing*. p. 154.

social needs.<sup>1151</sup> Religious entanglement with politics also limited both of them, insofar as the state, having to exclude infidels and to base its own legitimacy in religious tenets, could not become a universally inclusive institution, and religion could not differentiate itself according to its own metaphysical criteria.

The first constitutional systemic associations were political, economic and religious, through the attribution of political rights of participation, property rights and the separation between state and church, expanding the universe of included individuals both politically and economically. In a constitutional society, selected under the conditions of functional differentiation, law specifies the normative conditions under which each social system can develop itself regionally through the action of organizations and individuals performing systemic communications (memetic replication). The constitution specifies *rights* which define the freedom of action under which each system can perform its own operations.<sup>1152</sup>

Here, the approach suggested by David Sciulli can be again an inspiration. In an attempt to provide a way to institutionalize and combine Lon Fuller's proposed procedural rules against arbitrary government and Jürgen Habermas' communicative action theory, he argues that the very existence of a collegial formation institutionalizes external constraints on authoritarian exercises of power.<sup>1153</sup> In *The Morality of Law*, Fuller argues that law is valid (lawful) whenever it passes a procedural test – it should be general (applicable, in principle, to all actors and groups), promulgated (informed by authority for all those subject to its application), prospective (retroactive rulings must be exceptions), sufficiently clear, non-contradictory, possible (law should not require actions beyond the actor's ability to

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1151 "It is characteristic especially of earlier, archaic societies that economic functions are fulfilled within the framework of other multifunctional social institutions. They are combined in a number of different ways with familial, political, religious, or military functions. Because these societies are small and segmentally differentiated, they cannot bear the risk of abstracting specific functions from one another." In Luhmann, N. (1982). *The Differentiation of Society*. p. 197.

1152 Under the conditions of functional differentiation, social systems are integrated and, as such, are interdependent on each other. As a result, integration implies a reduction of freedom for every system. See, on this point, Neves, M. (2013). *Transconstitutionalism*. p. 179.

1153 See Sciulli, D. (1992). *Theory of Societal Constitutionalism: Foundations of a non-Marxist Critical Theory*. p. 77.

conform), constant and congruent.<sup>1154</sup> Sciulli assumes that Fuller's proposed conditions of legal validity specify more generalizable criteria to evaluate whether *any* (not only legal) exercises of collective power are legitimate. Whenever these conditions are observed within any collegial formation, its members will recognize and restrain collectively any arbitrary attempt to exercise social control.

Notice that these conditions are external (procedural), since they do not depend on the nature of the endeavor embraced by any organization. Any association, union, university, business firm managed by a cooperative of employees, scientific association, organized under tenets that respect this procedural threshold institutes a system of shared social duties that protects the organization against *internal* authoritarianism<sup>1155</sup> (violation of the procedural rules) and against *external* systemic drift (colonization of the organization by the tenets of other social system's rationality) criteria.

David Sciulli's analysis is limited, though, because he does not evaluate well how collective formations and organizations can be protected by the legal system as such. According to him, this would not be a problem, insofar as the protection assigned by law to any collegial formation would be substantive, according to the criteria adopted by law itself, and not procedural. Law would protect the collegial formation according to the legal pattern of rationality, not under the non-rational restraints of participants who want to preserve the organization. This is why he understands the constitutional framework of division of powers, separation of church and state, and attribution of individual rights as an internal restriction and, as such, subjected to drift.<sup>1156</sup>

I must disagree with Sciulli on this point. Functional differentiation is a process which can be observed through many lenses. From the perspective of each organization, including collegial formations, their internal organization can design restrictions against external dissolution and rationalization drift – the subordination of its operations to the systemic rationality of other social system. And they can do so irrespectively of being collegial formations or not; business firms, for instance, can employ their financial advantage to pay for advertisements and gain support for their cause in or-

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1154 See Fuller, L. L. (1969). *The Morality of Law*. New Haven: Yale University Press. pp. 33-41. See also Sciulli, D. (1992). *Theory of Societal Constitutionalism: Foundations of a non-Marxist Critical Theory*. pp. 111-113.

1155 See Sciulli, D. (1992). *Theory of Societal Constitutionalism: Foundations of a non-Marxist Critical Theory*. p. 121.

1156 See Sciulli, D. (1992). *Theory of Societal Constitutionalism: Foundations of a non-Marxist Critical Theory*. p. 57.

der to reassure their autonomy.<sup>1157</sup> A university can gather *external* popular support (not the support of its own members) in order to gather the resources it needs to finance its researchers. What Sciulli fails to see is that this kind of social action, also procedural but non-restricted to the collegial formations, is also non-authoritarian, provided that it respects the Kantian maxims that it be directed to the preservation of the organization's own autonomy and not to the disruption of the operations of any other organizations as an intended consequence of the action.

As a result of this procedural reasoning, Sciulli envisages only one role for the public sphere: the institutionalization of procedures that protect the "integrity of collegial formations as a matter of public or corporate policy."<sup>1158</sup> Politics would be non-authoritarian provided that it institutionalized public policies that fostered and protected the integrity of collegial formations. In my expanded reading of Sciulli, the public realm's role would be to protect any form of organization – not only collegial formations –, insofar as they are *loci* where *most*<sup>1159</sup> social system's operations proceed and concentrate. By protecting them, the public sphere protects functional differentiation as a consequence.

To be sure, Sciulli himself seems to have changed his own position later on, in his book *Corporate Power in Civil Society*,<sup>1160</sup> published in 2001, nine years after his *Theory of Societal Constitutionalism*. In this latter book, Sciulli acknowledges that corporations struggle for their own legal autonomy and, by doing so, they generate externalities (the risk of rationalization drift) that must be discussed and disciplined in the public sphere – more

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1157 A huge example of this that is happening across all over the world in the very moment I write is the case of Uber, the private car rider share paid service. All over the world, taxi companies have argued that the service is illegal, but the company is trying to gather popular support to stand for its own autonomy as a business firm by affirming itself as a 'new economy' kind of business. See, for instance, Lichfield, J. (2015). Uber protests in Paris: Government outlaws on-line service which connects passengers with unlicensed drivers after taxi demonstrations. *The Independent*. Retrieved from <http://goo.gl/cly0ES>.

1158 Sciulli, D. (1992). *Theory of Societal Constitutionalism: Foundations of a non-Marxist Critical Theory*. p. 257.

1159 Not all systemic operations occur within organizations, but they are essential for functional differentiation. See, e.g., Turner, J. H. (2012). *Theoretical Principles of Sociology*, Volume 3. pp. 57-58.

1160 See Sciulli, D. (2001). *Corporate Power in Civil Society: an Application of Societal Constitutionalism*. New York: New York University Press.

specifically, in the judicial system.<sup>1161</sup> This is a different opinion from the sustained in the *Theory of Societal Constitutionalism*, where legal institutions were considered mere substantive constraints on authoritarianism and, as a result, were held as inefficient against the risk of rationalization drift.

The main function of constitutions at the meso-dynamic level is to protect functional differentiation by protecting different systemic communications and defining the limits of organizational forms. Constitutions do so by assigning fundamental rights that institutionalize certain expectations beneath the legal system concerning organizations and systemic communications.<sup>1162</sup> When religious freedom is institutionalized, for instance, it protects *both* the state and churches from mutual interference, allowing for both of them to operate according to the systemic codes of politics and religion.<sup>1163</sup> If law played no role in restricting how organizations could keep their own self-determination, as Sciulli seemed to suggest in his *Theory of Societal Constitutionalism*, they could develop any different strategy they could to uphold themselves, irrespectively of how many collegial formations existed in one society – insofar as they would only protect *themselves* from drift and *external* (not internal) authoritarianism against them. No organization would necessarily care about the autonomy of other organizations or individual rights. After all, it is possible to conceive of – as Sciulli does – that the only thing that matters to members of one organization

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1161 In Sciulli's own words: "In short, democratic societies are marked not only by formalities of government and consistent rule enforcement in and around the state but also by consistent rule enforcement in and around at least certain structured situations in civil society. We propose that the structured situations that matter most here are those found in intermediary associations, not those found in other organizations or, certainly, those found in primary groups (such as families, neighborhoods, and local schools and communities). Put bluntly, it matters more in democratic societies how corporate officers exercise their positional power within governance structures than how restaurant owners exercise theirs over waiters and kitchen staff, how parents and neighbors exercise theirs over children, or how teachers exercise theirs over students. Thus, it is more important for courts to hold corporate officers to the threshold of procedural norms, if courts wish to support the institutional design of a democratic society." In Sciulli, D. (2001). *Corporate Power in Civil Society: an Application of Societal Constitutionalism*. p. 238.

1162 See Luhmann, N. (2010). *Los Derechos Fundamentales como Institución*. p. 99.

1163 See Luhmann, N. (2010). *Los Derechos Fundamentales como Institución*. p. 133; Audi, R. (1989). The Separation of Church and State and the Obligations of Citizenship. *Philosophy and Public Affairs*, 18(3), 259-296.

is the protection of the collegial formation itself, and not political democratization as such.

From a meso-dynamic level perspective, a constitution emerges with the increase in novel organizations, arranged under collegial formations and other forms of arrangements, with a *claim* and a *normative guarantee* to their autonomy. In Europe, as argued by Brunkhorst, the process *started* in the 11th century with the Papal Revolution and the development of a modern doctrine of associational legal form, which later on became essential to separate the identity of an organization from its members.<sup>1164</sup> I would say, however, that the process was definitely finished by the 18th century with the formal institutionalization of constitutions, after the French and American Revolutions. As evolutionary events, nonetheless, it is always hard to impose definite moments.

From the standpoint of law, not all strategies to preserve organizational autonomy can be allowed. Politics can institutionalize legal statutes, which will be interpreted and enforced by courts, that can *steer* (not *determine*) how organizations can be internally structured and keep their own autonomy, while maintaining the autonomy of other organizations (meso-dynamic) and the autopoiesis of other social systems (macro-structural). The way to do so, as already mentioned, is through the institutionalization of fundamental rights. I started discussing rights associated to meso-dynamic level organizations insofar as they, in my view, are essential for the institutionalization of physical and social *loci* where memetic replication can facilitate the isolated communications of distinct social systems.

There is a strong connection between the meso-dynamic level and the macro-dynamic level of the constitutional society; the ways through which constitutions limit the autonomy of organizations directly affect the fitness of the whole constitutional society, since it will result in different political, educational, religious, scientific, economic and welfare policy outcomes. As a result, there is variance in fitness among distinct constitutional societies, with the consequent production of center and peripheries in world society. Constitutions regulate the interactions between organizations communicating distinct social systems operations and, by doing so, they affect the differential fitness of the whole constitutional society.

The institutionalist Douglass C. North, in his acclaimed *Institutions, Institutional Change and Economic Performance*, demonstrates the relevance of political and legal institutions and incentives for the understanding of eco-

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1164 See Brunkhorst, H. (2014). *Critical Theory of Legal Revolutions: Evolutionary Perspectives*. p. 120.



conomic performance – a major example of the thesis that constitutions affect the fitness of constitutional societies. Abandoning the traditional neo-classic view of economy, according to which institutions are ultimately efficient and individuals are wealth-maximizers,<sup>1165</sup> North devised a theory of economic development that takes into account the interactions between economy and legal and political institutions. These institutions determine the opportunities in a society, and the economic organizations take advantage of them; by doing so, they also affect the outcome of political and legal institutions.

"The resultant path of institutional change is shaped by (1) the lock-in that comes from the symbiotic relationship between institutions and the organizations that have evolved as a consequence of the incentive structure provided by those institutions and (2) the feedback process by which human beings perceive and react to changes in the opportunity set."<sup>1166</sup>

In his view, the economic success of England in the 19th century, for instance, was a direct result of its constitutional framework, which produced a path dependence trajectory of economic growth. Comparing how England and Spain faced the fiscal crisis resulting from the costs of financing wars during early modernity, he states many institutional differences between both countries. While the Iberian country adopted an unstable centralized institutional framework which led to a repeated cycle of "unresolved fiscal crises, bankruptcies, confiscation of assets, and insecure property rights"<sup>1167</sup>, in England the supremacy of Parliament and the structured system of checks and balances reduced abuse and granted a stable system of property rights and a more effective judicial system. Soon enough, England created its Central Bank and a fiscal system which tied its expenses to the tax revenues, while institutionalizing patent laws much needed to stimulate economic innovation.<sup>1168</sup> In contrast, Spain subjected all economic activity to the will of the crown, leaving the political system still unconstrained by a formal set of constitutional restraints.

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1165 See North, D. C. (1990). *Institutions, Institutional Change and Economic Performance*. New York: Cambridge University Press. p. 7.

1166 In North, D. C. (1990). *Institutions, Institutional Change and Economic Performance*. p. 7.

1167 In North, D. C. (1990). *Institutions, Institutional Change and Economic Performance*. p. 113.

1168 See North, D. C. (1990). *Institutions, Institutional Change and Economic Performance*. p. 114.

Constitutions emerge as a reaction from the differentiation between the legal and the political system.<sup>1169</sup> With the positivization of law in the 18th century, the legal system becomes autopoietic, lacking any metaphysical foundation such as natural law; and the political system also becomes self-referential. Both of them, however, are structurally coupled through the constitution. Under the conditions of functional differentiation, law and politics cannot refer anymore to anything such as natural law or divine rulership as their foundations, and the constitution replaces these metaphysical groundings as a procedural part of *both systems*. As a result, the constitution is both legal and political. From the standpoint of law, it is a legal instrument for disciplining politics; and, from the perspective of politics, it makes positive law a result of political choice. The political state emerges as the carrier of the constitution, which defines the mode of structural coupling between both systems.<sup>1170</sup>

It is a truism to state that the new concept of constitution limited politics and law. Luhmann goes one step further and proposes that the constitution not only limited politics and law but also fostered the generation of new possibilities for both. Law and politics became differentiated social systems, but they remained in strict contact with one another through the concept of constitution. Political communications are binding because they can be enforced through legal institutions, and in this sense, modern politics is intrinsically dependent on law. Even the internal communications of politics rely on law because elections are regulated by the constitution and political acts by legislative procedures. However, law also depends on politics.

Legal change can occur through a court's rulings, but this process is often slow and conservative. In contemporary societies in which economic and technological changes are increasingly fast-paced, legal innovation mostly occurs through new statutes, decrees and regulations that derive not only from the political bodies but also from executive agencies. In this

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1169 See Luhmann, N. (2004). *Law as a Social System*. p. 404.

1170 In Luhmann's words: "As a result, the 'state' eventually emerged as the carrier of the structural coupling between the political system and the legal system - however, only under the special condition that the state was given a constitution which made positive law the instrument of choice for political organization and, at the same time, made constitutional law a legal instrument for the disciplining of politics. This form of coupling by the constitutional state made possible higher degrees of freedom and a remarkable acceleration of the dynamics within both systems, that is, for the legal system as well as for the political system." In Luhmann, N. (2004). *Law as a Social System*. p. 404.

sense, law's adherence to societal change depends on its relations with the political system. The positivization of law is also an evolutionary acquisition, insofar as it enables the political system to change law through political communication, responding quicker to changes. Before positivization, law as a structure could only be changed through interpretation, in an *unconscious* attempt to adjust law to novel conditions. After the autonomization of the legal system, law can also be intentionally changed through politics, enabling the political system – and the societal structure as a whole – to adjust to changing environments.

By maintaining functional differentiation, constitutions provide the normative structure needed to maintain the division of labor between different social systems in their regional communications. The maintenance and spread of the division of labor is not only a consequence of social logic, but a major consequence of the evolutionary process. In nature, the division of labor is widespread. As Szathmáry & Maynard Smith propose,<sup>1171</sup> the main evolutionary transitions, such as those from prokaryotes to eukaryotes, from unicellular to multicellular organisms, and from chimpanzee sociability to human social life, were accompanied by division of labor. There are many other examples in nature: differential roles between male and female in offspring raising is pervasive and can be observed in hornbills<sup>1172</sup> and emperor penguins.<sup>1173</sup> Sentinel behavior in forager groups such as suricates<sup>1174</sup> and group hunting among bottlenose dolphins<sup>1175</sup> are also important examples of the division of labor in the natural environment. Having hearts, lungs and stomachs, i.e., organs that perform different functions, raised the efficiency of living beings, paving the way for increasingly more complex life forms. The division of labor in social frameworks is not only a human feature; it is widespread in nature.

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1171 See Smith, J. M. and Szathmáry, E. (1997). The Major Transitions in Evolution. pp. 210-270.

1172 See Duarte, A., Weissing, F. J., Pen, I. and Keller, L. (2011). An Evolutionary Perspective on Self-Organized Division of Labor in Social Insects. *Annual Review of Ecology, Evolution, and Systematics*, 42(1), 91-110.

1173 See Lemaho, Y. (1977). The Emperor Penguin: A Strategy to Live and Breed in the Cold. *American Scientist*, 65(6), 680-693.

1174 See Manser, M. B. (1999). Response of Foraging Group Members to Sentinel Calls in Suricates, *Suricata suricatta*. *Proceedings: Biological Sciences*, 266(1423), 1013-1019.

1175 See Gazda, S. K., Connor, R. C., Edgar, R. K. and Cox, F. (2005). A division of labour with role specialization in group-hunting bottlenose dolphins (*Tursiops truncatus*) off Cedar Key, Florida. *Proceedings of the Royal Society B-Biological Sciences*, 272(1559), 135-140.

Functional differentiation between law and politics had the same impact on the level of social systems as labor division had in societal roles or as organic differentiation had for living beings: both social systems enjoyed increased efficiency in their systemic operations. This increase in efficiency is what qualifies the constitution as an evolutionary acquisition. It is an adaptation that solves a problem within social systemic evolution: the reaction of social systems to the differentiation between law and politics and the societal need for interaction between these two systems. Rather than relying on a hierarchical approach, systemic differentiation led to the emergence of autopoietic subsystems which interact in a strictly horizontal (non-hierarchical) relation. The efficiency of these social systems increased after functional differentiation because their communication (memetic replication) could become specialized to address political or legal issues. And the constitution turned out to provide the path of communication between these two systems: "an immense increase in mutual irritability can be achieved through constitutions by limiting the corridors of contact – more possibilities are created for the legal system to register political decisions in a legal form, and also more possibilities for the political system to use the law for the implementation of politics."<sup>1176</sup>

As previously stated, constitutions institutionalize a framework in which operate two of the three mechanisms proposed by John Maynard Smith and Eörs Szathmáry to explain the transition to higher level entities: kin selection and central control. According to them, kin selection structures

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1176 See Luhmann, N. (2004). *Law as a Social System*. p. 404. Luhmann refers to irritability in order to describe the ways in which a system, through its own internal operations, becomes cognitively open and capable of reading information construed by its environment (including other systems). One system irritates another one in the sense that its operations can be read through the lenses of another system, according to the latter one's code. In Luhmann's own words: "Irritation is also a form of perception within the system, but one that does not have a correlate in the environment. The environment is not irritated and only an observer can formulate the statement that 'the environment irritates the system'. The system itself registers the irritation-for instance, in the form of the problem of who is right if there is a conflict-only on the video screen of its own structures. Anomalies, surprises, and disappointments all presuppose expectations in which they can be reflected, and these are structures that result from the history of the system. The concept of irritation does not contradict the hypothesis of operative closure or deny that the system is determined by its own structures. Rather the concept presupposes the theory." In Luhmann, N. (2004). *Law as a Social System*. p. 383.

the evolution to more complex entities insofar as it suppresses free riding between cells by assuring that all cells are genetically identical.

Constitutions do the same by attributing basic rights to all, and formally acknowledging that all persons, individuals or legally recognized corporate persons, are *equal bearers of rights belonging to the same constitutional society*. This is part of what constitutional concepts like the '*we the people*' do; they signal that all individuals are formally equal and, as such, there is no reason to struggle against others for the formal recognition of rights. Instead of *genetic* relatedness, constitutions grant *legal* relatedness, enabling cooperation to emerge as a product of legal interactions, such as contracts, promises, investiture in public offices and legal attribution of authority.

This is a fundamental point to be observed from a structural perspective. Legal recognition of persons as right bearers – what Rawls would call the public conception of person<sup>1177</sup> – is only a departure point for micro-level interactions, which are held under the assumption of legality and the constitutional framework. Of course, individuals will disagree and pursue their own interests based on distinct conceptions of the good; but, from the standpoint of constitutional society, they will be working within an integrated order in which all perform legal functions and, as a result, maintain the constitutional structure operational. The patterns of social relationships<sup>1178</sup> are maintained through the comprehensive allegiance to the rule of law. This is a distinct way to integrate society, since, unlike pre-modern societies, no *deep* fidelity to the religious tenets of a community is demanded from the citizens, but only a *narrow* commitment to law. By demanding so little metaphysical<sup>1179</sup> commitment from its citizens, constitutions can integrate a vastly pluralistic population in a single cooperative environment.

Another mechanism devised by Smith & Szathmáry to explain the transition to higher-level entities is central control. In a biological organism, the suppression of free rider cells can occur as a mere result of number. Whenever a selfish mutation (like a cancer) occurs in a chromosomal gene, the odds are high that it will be suppressed by possible suppressor mutations in another locus within the genome. Since the genes of a complex organism have been selected to act in concert, the emergence of a free rider

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1177 See Rawls, J. (2005). Political Liberalism.

1178 See Parsons, T. (1963). On the Concept of Political Power. p. 234.

1179 The sense in which the term 'metaphysics' is used here relates to the Rawlsian usage of the concept, as in Rawls, J. (2005). Political Liberalism.

ignites a collective retaliation process in order to suppress the misbehaving cell.<sup>1180</sup>

This is what Smith & Szathmáry refer to as central control. Constitutional institutions perform pretty much the same function, by organizing the political arrangements in such a way that agents have incentives to monitor the behavior of others and, as a result, prevent political free riding. Institutions such as judicial review,<sup>1181</sup> separation of powers, the distinction between the Senate and House of Representatives, and even the distinction between Federal, State and Local levels are mechanisms devised to impose limits on each of these institutions, not only by assigning specific powers, but also in the hope that conflicts between them will prevent abuse.<sup>1182</sup> Other institutions, such as the police, can be invoked to repress legal breaches and to maintain the level of trust needed to support cooperation at the micro-dynamic level.

The constitutional state performs central control within a constitutional society, structuring the rule of law and the cooperative conditions needed for the integration within law itself and between law and other social systems. Acknowledging this is necessary to counterargument an objection that could arise against this thesis, related to the theme of nationalism. Someone following Ernest Gellner's argument<sup>1183</sup> could argue that what holds together the Darwinian individual I call a *constitutional society* is nationalism, not a constitution. But this would be a mistake.

According to Gellner, nationalism is "primarily a political principle that holds that the political and the national unit should be congruent"<sup>1184</sup>. His definition is based on assumptions of shared values in a homogenous community, notwithstanding the fact that a country might tolerate a small number of minority groups.<sup>1185</sup> These values would be reinforced and spread through a common educational system, producing a "fusion of cul-

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1180 See Smith, J. M. and Szathmáry, E. (1997). *The Major Transitions in Evolution*. p. 810.

1181 In recent years, the judicial system has become a threat to the traditional separation of powers. As Han Hirschl highlights, we have seen a concentration of political powers in courts and, as a result, we risk facing what he calls juristocracy. See, e.g., Hirschl, R. (2004). *Towards Juristocracy: The Origins and Consequences of the New Constitutionalism*. Cambridge: Harvard University Press.

1182 See, on this point, the excellent discussion by Przeworski, A. (2010). *Democracy and the Limits of Self-Government*. pp. 127-138.

1183 See Gellner, E. (2006). *Nations and Nationalism* (Kindle ed.). Malden: Blackwell Publishing.

1184 In Gellner, E. (2006). *Nations and Nationalism*. p. 494.

1185 See Gellner, E. (2006). *Nations and Nationalism*. p. 512.

ture and polity which is the essence of nationalism"<sup>1186</sup>, and a "high culture [that] pervades the whole society."<sup>1187</sup> Nationalism could only exist in an industrial world, where a complex division of labor develops; since it depends on filling the gap between local, partial and specialized production units and the nation as whole.<sup>1188</sup>

Gellner is right assuming that functional differentiation demanded a new principle of social organization in order to structure cooperation between distinct productive units, now organized in a production chain typical of industrialized societies. However, he is wrong in assuming that this principle demands a fusion between political institutions and an assumption of shared values. What holds a functionally differentiated society together is not a shared culture, but a particular set of political and legal institutions capable of steering a relatively efficient relationship between all social system's units.

The well-functioning of these institutions depends – as Gellner correctly assumes – on a shared perspective, but this does not mean that everyone shares the same values as in a pre-modern society. Modern societies are deeply pluralistic and, as such, we cannot simply assume, as Parsons did, the sharing of a particular culture as a necessary foundation. In early modernity, a principle like *cuius region, eius religio* was capable of unifying and stabilizing society because double contingency was solved by the shared assumption that everyone was subjected to a particular religion – the religion of the king. In opposition to this state of affairs, pluralism is deeply rooted in modern democracies and, as a result, the assumption of shared values is far less convincing. Gellner's communitarian approach cannot address this issue properly because his assumed value consensus is incompatible with a deeply rooted pluralism.

This is precisely the issue at stake in the liberal-communitarian debate. Communitarians can either devise a society where everyone accepts a full-encompassing comprehensive doctrine that supports the legitimacy foundation of political institutions, or a society that protects every minority group in a given society, not accepting any restriction on its values and social practices. Communitarians reject the existence of a public reason un-

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1186 In Gellner, E. (2006). Nations and Nationalism. p. 646.

1187 In Gellner, E. (2006). Nations and Nationalism. p. 702.

1188 See Gellner, E. (2006). Nations and Nationalism. p. 881.

connected from a value-based doctrine based on particular traditions.<sup>1189</sup> This is precisely Gellner's position: even though he admits that modern societies are secular and embrace different values than pre-modern ones, he ends up in assuming that there must be an agreement on certain basic values on which modern practices are backed. Minority groups can only be tolerated because they are powerless to undermine social values.

Rawls addressed this problem by distinguishing between the political domain of public reason and comprehensive doctrines.<sup>1190</sup> According to the Harvard philosopher, the legitimacy needed to uphold stable constitutional democracies derives from the attribution of individual rights to everyone, such as freedom of expression and religious freedom, which allows everyone to act freely and to live according to a particular set of values designated by a willingly accepted comprehensive doctrine. In this sense, underlying the Rawlsian distinction between public reason and comprehensive doctrines is a contrast between *rights* and *values*. Modern constitutional democracies are stable because there is an implicit agreement that every citizen is endowed with a set of fundamental rights, and not that they agree about a specific comprehensive doctrine backed on deep values.<sup>1191</sup> This is a huge difference, insofar as political unity is assured procedurally

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1189 See, e.g., Walzer, M. (1990). The communitarian critique of liberalism. *Political Theory*, 18(1), 6-23; Taylor, C. (1994). The Politics of Recognition. In Gutmann (Ed.), *Multiculturalism and "The Politics of Recognition"* (pp. 25-73). Princeton: Princeton University Press; MacIntyre, A. (2007). *After Virtue: a Study in Moral Theory* (3rd ed.). Notre Dame: The University of Notre Dame Press; Sandel, M. (2005). *Liberalism and the Limits of Justice*. Cambridge: Cambridge University Press; Slaughter, M. M. (1994). The multicultural self: questions of subjectivity, questions of power. In Rosenfeld (Ed.), *Constitutionalism, identity, difference, and legitimacy*. Durham: Duke University Press; Gutmann, A. (2003). Rawls on the Relationship between Liberalism and Democracy. In Freeman (Ed.), *The Cambridge Companion to Rawls* (pp. 168-199). Cambridge: Cambridge University Press; Mulhall, S. and Swift, A. (2003). Rawls and Communitarianism. In Freeman (Ed.), *The Cambridge Companion to Rawls* (pp. 460-487). Cambridge: Cambridge University Press.

1190 See Rawls, J. (2005). Political Liberalism. p. 441.

1191 In this sense, see Frank Michelman's commentary about Rawlsian theory: "Rawls has sought to ascertain the conditions of the possibility of political legitimacy in modern, plural societies. He asks how it may be possible that 'there [could] exist over time a stable and just society of free and equal citizens profoundly divided by reasonable though incompatible religious, philosophical, and moral doctrines'; or, in terms he interestingly considers equivalent, how 'deeply opposed though reasonable comprehensive doctrines may live together and all affirm the political conception of a constitutional regime.' Cast in terms of legitimacy, the question is how there can be a moral warrant for



through discussions about the meaning of rights and obligations, and not substantively via a set of shared constitutive values as Gellner's proposal seems to invoke.

Values embody deep commitments about metaphysical questions concerning every aspect of the good life, including ethical standards, behavioral commitments, ethnic traditions and religious beliefs. The overlapping consensus assumed in a constitutional democracy, on the contrary, is narrow. It does not concern the truth of specific metaphysical beliefs held by any comprehensive doctrine, but only the constitutional essentials of a given polity, the public principles that specify the role of government and politics.<sup>1192</sup> Constitutional essentials specify, for instance, the powers of the legislative, executive and judiciary, and the rights assigned to all. Public reason is performed through a rights-based discourse, and not values, precisely because it allows a large room for pluralism. This is a procedural, not substantive, approach toward constitutional legitimacy, insofar as rights and the public institutions peculiar to democratic regimes do not depend on a *strong* metaphysical commitment to particular doctrines. They are methods to process political conflict, not mechanisms to decide and impose ethical standards. There is no need of substantive consensus, but only the acceptance of procedures such as regular elections, checks and balances, and the majoritarian principles that settle questions concerning collective action.<sup>1193</sup>

Underlying this perspective, Rawlsian liberalism assumes the Kantian *priority of the right over the good*, meaning that questions relative to ethical values shared by particular communities are subordinated to considerations of rights. From a functional perspective, this means that constitutional legitimacy is not derived from culture, religion, ethnic values and particular moral doctrines, but, on the contrary, that constitutions impose limits on what kinds of values are considered acceptable. The members of a constitutional democracy must acknowledge that any comprehensive doctrine must be compatible with the tenets of public reason – principles of justice (rights) widely accepted by all members of a given constitutional society.

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enforcement of laws made by majoritarian institutions against individual members of a population of presumptively free and equal persons – how 'citizens [in a democracy may] by their vote properly exercise . . . coercive . . . power over one another.'" In Mulhall, S. and Swift, A. (2003). *Rawls and Communitarianism*. p. 395.

1192 See Rawls, J. (2005). *Political Liberalism*. p. 227.

1193 See Przeworski, A. (2010). *Democracy and the Limits of Self-Government*. pp. 24-43.

This is why Cass Sunstein argues that constitutions challenge traditions; any cultural practice can only be deemed as permissible if it is well suited to principles embodied in the constitution. In his reading, constitutions are "against tradition"<sup>1194</sup> because their legitimacy is, as Rawls would say, freestanding,<sup>1195</sup> not rooted in any specific tradition. On the contrary, constitutions can – and sometimes *must* – dissolve long-standing practices in order to protect functional differentiation. This is what many constitutions did during the transition from pre-modern times and continue to do even today, as it can be observed in the transition from dictatorial to democratic governments and in countries such as India and South Africa, where well-established practices of discrimination against minority groups were institutionally curbed.

Even if all social systems are heterarchic in a functionally differentiated society, meaning that no system has precedence over others, from the perspective of the legal and political system there is an intrinsic priority of legal and political considerations over the operations of any other system and metaphysical beliefs – including culture as such. The priority of the right over the good is only one specification of a much wider principle – *the priority of the legal and political system over all other communications*. This feature is what holds constitutional society together, insofar as it imposes legal constraints on communication and social cooperation. Economy, medicine, science, religion and education, among other social systems, are constrained by constitutional law, which specifies the structural limits of communication. As a result, constitutions define the communicational (memetic) regional boundaries of social systems by imposing normative limits on their operations.

As previously stated, constitutions mimic two of the three mechanisms presented by John Maynard Smith and Eörs Szathmáry to support the evolution of higher-level evolutionary systems by suppressing the autonomous evolution of the lower-level components of the Darwinian individual: kin selection and central control. But constitutions also play a role in producing the division of labor between soma and germ in constitutional societies and in preventing the evolutionary process reversibility.

As already mentioned, the distinction between germ and soma protects the evolutionary system against competition at the micro-dynamic level. Kin selection is not enough to suppress free riding because there is always

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1194 In Sunstein, C. (2001). *Designing Constitutions: What Constitutions Do*. Oxford: Oxford University Press. pp. 67-93.

1195 See Rawls, J. (2005). *Political Liberalism*. p. 144.

the possibility that a mutant agent subverts replication in its own favor, in an attempt to become the replicated model within the next generations. Central control partially protects the Darwinian individual against this risk by suppressing the activities of this agent (as the immune system does against cancer cells). And the germ/soma distinction limits the extent of the damage of such a mutant unit because the somatic low-level units cannot produce a high-level collective reproducer at all, and the relatively random germ units can pave the road alone to a newly replicated individual.

Reproduction is hard to be defined in social units, insofar as the B (Bottleneck) in Godfrey-Smith's parameter is low. Complex societies do not generate any visible mark dividing different generations. Nonetheless, as argued in section 3.2.3, they can score high in parameter G (germ line) due to the modern educational system, which prepares youngsters to occupy different roles in a functionally differentiated society while also educating them to recognize each other as free and equal agents capable of acting in the political system.<sup>1196</sup> The educational system acts as a *memetic* germ line, a systemic institution specialized in educating individuals into basic information for them to participate potentially within all institutional domains.<sup>1197</sup> Nonetheless, as mentioned, the educational system is also normatively constrained by the constitutional framework, which assigns powers to certain institutions to define the curriculum, teacher's duties and rights, the structure of education and so on.

Constitutions are also essential for maintaining irreversibility in modern constitutional democracies. A fundamental feature of complex Darwinian individuals, contingent irreversibility relates to the mutual interdependence of lower-level components, which lose the capacity for independent replication.<sup>1198</sup> By structuring the legal and political operations that hold the partial social systems together, the constitution blocks reversibility. Each social system assumes the constitutional framework as given and, as such, generally operates responding to the pressures normatively imposed by its legal/political institutions. As a result, a reversal to the pre-modern

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1196 See, e.g., Callan, E. (1997). *Creating Citizens: Political Education and Liberal Democracy*; Levinson, M. (2004). *The Demands of Liberal Education*. Oxford: Oxford University Press; Marples, R. (Ed.). (1999). *The Aims of Education*. London: Routledge.

1197 See Turner, J. H. (2010a). *Theoretical Principles of Sociology*, Volume 1. pp. 100-101.

1198 See Smith, J. M. and Szathmáry, E. (1997). *The Major Transitions in Evolution*. p. 9.

context of functional undifferentiation, although always a possibility, becomes improbable.

There are two last issues concerning the emergence of constitutional societies as Darwinian individuals. Firstly, it is important to systematize how constitutional societies could be understood in terms of the parameters advanced by Peter Godfrey-Smith and, secondly, to examine the nature of the emergence of constitutionalism as an adaptation, considering the role of constitutional revolutions and how the theory of constituent power could be understood within an evolutionary perspective. This is an important discussion because, at first sight, the traditional theory of constituent power, based on the idea that constitutions are created by the *will* of a political collectivity (the people, the nation, and so on), seems to be in opposition to an evolutionary account.

As already mentioned, one feature of Darwinian individuals is the variation decrease *within* the evolutionary system. In pre-modern societies, variation within the group is maintained through conformist bias, moralistic punishment and sensitivity to symbolic markers through the adoption of a homogenous cultural/religious background. As every individual accepts the same beliefs, memetic variation is decreased within the group. Within constitutional societies, these elements also reduce variation, but in a more institutionalized framework.

Conformist bias also plays a role in keeping variation low, but instead of being directed to individuals who believe in the same *cultural and religious values*, it is directed to individuals *sharing the same rights* (legal persons). Of course, constitutional societies face a tension concerning this point, since many individuals will tend to cooperate more with those who share with them the same values. Nonetheless, since the cooperative environment is pluralistic, even individuals sharing widely different comprehensive doctrines will face circumstances where cooperation pays, and then the tenets of constitutionalism can gradually become a trigger for our social instincts. Of course, in a pluralistic setting, there will always be two sources of symbolic marking – the partial reality of comprehensive doctrines and the all-encompassing order of constitutional principles. As a result, an inherent conflict in modern pluralistic societies between these two sources of symbolic marking will be expected.<sup>1199</sup> However, constitutional societies can keep their internal variation low from the standpoint of a *rights-based approach*, insofar as all legal persons share the same rights, while at the same

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1199 See Rawls, J. (2005). *Political Liberalism*. p. 310.

time allowing for much variation at the level of value-based comprehensive doctrines.

As a result of the distinction between rights and values, *moralistic punishment* is replaced by *legal punishment*. From the perspective of law and politics, apostasy and heresy cannot be held as crimes insofar as it does not matter whether someone dissents in terms of *belief* from another and, as such, state power cannot be diverted to punish lack of conformism to any given comprehensive tradition.<sup>1200</sup> As a result, moralistic punishment is confined to the domains of morality and religion, structuring cooperation in smaller groups identified with a specific doctrine. In a different fashion, legal punishment structures cooperation in modern societies, punishing free riders who violate the more abstract identity structured around constitutional principles and individual rights.

Constitutional societies score high in inheritance fidelity (H). Unlike large cooperative groups, however, inheritance is not based solely on culture, but also on the maintenance, over time, of institutional traits such as the separation between church and state, the distinction between rights and values, the separation of powers, various checks and balances, and constitutional structure as a whole. The institutional architecture is transmitted from one generation to another and is maintained relatively stable over time as a result of punishment and the democratic monitoring of power-bearers and attempts to usurp power.

Constitutional societies also score high in the relationship between intrinsic properties and fitness (S), insofar as their institutional structures affect their selection in comparison to other societies (structural selection). A flawed constitutional design that does not protect functional differentiation well and allows much room for corruption and encroaching of free riders within constitutional institutions will probably impact the fitness of a constitutional society. In the long run, it will either disintegrate and eventually produce a new constitutional society (through a revolution), or be stalled in an institutional crisis over a long period of time. In more dramatic situations, a constitutional society might be invaded and conquered by a more efficient one, or lose part of its independence by being subdued by more powerful (politically and economically) ones.

Constitutional societies present an important relationship between integration (I) and intrinsic fitness (S). One of the main macro- and meso-dynamic constitutional functions relates to its capacity to regulate the interactions between the legal system and other social systems at the regional

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<sup>1200</sup> See Rawls, J. (2005). *Political Liberalism*. p. 221.

level, resulting in the integration of the whole constitutional society - what Jonathan Turner denominates institutional integration.<sup>1201</sup> As a result, the better integrated the social systems are in a given constitutional society, the more efficiently they will perform their operations, resulting in an increase in intrinsic fitness. A constitution incapable of regulating these interactions well will probably result in dysfunctional and poorly integrated regional social systems, probably dominated by one system acting on behalf of the others and risking the stability of functional differentiation. For instance, a constitution incapable of maintaining businesses restrained by law will probably result in a society in which most systemic operations are colonized by economic criteria. The educational system is diverted to educate (only) citizens capable of participating as workers and not politically prepared to engage in public life, the quality of hospitals is measured by its capacity of producing profits (and not by the quality of its services), and so on.

Now, I want to turn to the last discussion in this section, concerning the nature of constitutional revolutions from an evolutionary perspective. Many authors, including Hauke Brunkhorst and Bruce Ackerman, consider constitutional revolutions as the product of punctuated bursts – special revolutionary moments when an acceleration of the evolutionary process occurs.<sup>1202</sup> This claim is based on Stephen Jay Gould and Niles Eldredge's theory of punctuated equilibrium, according to which species, rather than evolving gradually into novel species, arise by a split in the parental species through a process of speciation.<sup>1203</sup> In Gould & Eldredge's view, "new species appear in the fossil record already fully differentiated from their parent species."<sup>1204</sup> Instead of emerging gradually, new species appear suddenly and undergo no significant evolutionary change until its extinction – a period called by Gould as *stasis*, when the population reaches equilibrium.<sup>1205</sup> Evolution is accelerated in punctuational bursts, which occur as a result of reproductive isolation (resulting, for instance, from geographic

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1201 See Turner, J. H. (2010a). *Theoretical Principles of Sociology*, Volume 1. pp. 125-146.

1202 See Brunkhorst, H. (2014). *Critical Theory of Legal Revolutions: Evolutionary Perspectives*. pp. 33-35; Ackerman, B. (1999). *Revolution on a Human Scale*. p. 2281.

1203 See Gould, S. J. (2007). *Punctuated Equilibrium*. pp. 54-56.

1204 In Sterelny, K. (2001). *Dawkins vs. Gould: Survival of the Fittest*. Cambridge: Icon Books. p. 68.

1205 "We must then reformulate evolutionary change as a set of rare episodes, short in duration relative to periods of stasis between. Stability becomes the normal

isolation) and subsequent speciation. As a result, sometimes evolutionary changes that would take millions of generations can happen faster, in "only" thousands of generations.

Inbuilt within punctuation equilibrium theory is a critique of adaptationism.<sup>1206</sup> Many changes in traits could be explained by mere randomness in the evolutionary process, as in the brief periods of punctuational burst "there is not enough time for adaptation."<sup>1207</sup> In these cases, punctuational bursts produce not adaptations, but non-adaptive changes in the basic structural plan of a species<sup>1208</sup>, structuring internal constraints on further evolution.<sup>1209</sup> Evolution, for Gould & Eldredge, is to be understood as a result of both internal constraints and external adaptations. These constraints can impose difficulties for future structural changes and, as a result, are counter-evolutionary forces that keep a species (and specially levels above species) evolutionarily static over time. According to Gould, these punctuational bursts do not affect specific traits, but the larger anatomical structure that encompasses not only species, but biological classes, kingdoms and families.

"I have changed my initial view for two primary reasons. First, the arguments of Mayr and Lerner, the intellectual underpinnings of our initial proposals about constraint, have not held up well under further scrutiny, particularly in the privileging of small populations as especially, if not uniquely, endowed with properties that permit the breaking of stasis. Further modeling has led most evolutionists to deny that any major impediment for such change can be ascribed to large populations. Second, I now realize that my arguments for the channeling of potential direction and limitation of change apply primarily to levels above species—to aspects of the developmental *Baupläne* of anatomical designs that usually transcend species boundaries, rather than to resis-

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state of a lineage, with change recast as an infrequent and concentrated event that, nonetheless, renders phylogeny as a set of summed episodes through time." In Gould, S. J. (2007). *Punctuated Equilibrium*. p. 60.

1206 See, e.g., Gould, S. J. and Lewontin, R. C. (1979). *The Spandrels of San Marco and the Panglossian Paradigm: a Critique of the Adaptationist Programme*.

1207 In Brunkhorst, H. (2014). *Critical Theory of Legal Revolutions: Evolutionary Perspectives*. p. 33.

1208 See Brunkhorst, H. (2014). *Critical Theory of Legal Revolutions: Evolutionary Perspectives*. p. 33.

1209 See, e.g., Gould, S. J. (2007). *Punctuated Equilibrium*. p. 3.

tance of populations against incorporating enough genetic change to yield reproductive isolation from sister populations."<sup>1210</sup>

This kind of explanation has become popular in the social sciences in an attempt to explain rapid social change through the application of an analogical reasoning based on punctuational equilibrium theory.<sup>1211</sup> Following this trend, Brunkhorst's reading of constitutional history aims to find support in a theory of evolution through punctuational bursts followed by periods of stasis.

According to him, the four constitutional revolutions studied in his *Critical Theory of Legal Revolutions* are examples of punctuational bursts caused by *cultural speciation*. For instance, he claims the reforms monks experimented with many social formations before the Papal Revolution had taken place in the 11th century. Long before the Protestant Revolution of the 16th century, heretic corporations had been developing in relatively isolated communities. In the same vein, many Masonic lodges in Europe and America had been experimenting before the Atlantic Constitutional Revolution, and in the 19th century, communist and anarchists were experimenting novel forms of political organization before the 20th century social revolutions.<sup>1212</sup>

In his view, the punctuational bursts embodied in the above-mentioned revolutions institutionalized normative constraints on future evolution, protecting social evolution from certain evolutionary experiments.<sup>1213</sup> In a sense, revolutions can be understood as moments where social evolution paves a new path for further evolution, diverging from the previously followed road.<sup>1214</sup> The revolutionary advances progressively institutionalize what he calls the "Kantian mindset," based on the ideas of resistance against oppression, egalitarian freedom and universal political autonomy.<sup>1215</sup> Each revolution establishes normative constraints that pave the

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1210 In Gould, S. J. (2007). *Punctuated Equilibrium*. p. 179.

1211 For a review, see Gersick, C. J. G. (1991). Revolutionary Change Theories: A Multilevel Exploration of the Punctuated Equilibrium Paradigm. *The Academy of Management Review*, 16(1), 10.

1212 See Brunkhorst, H. (2014). *Critical Theory of Legal Revolutions: Evolutionary Perspectives*. p. 34.

1213 See Brunkhorst, H. (2014). *Critical Theory of Legal Revolutions: Evolutionary Perspectives*. p. 38.

1214 See Brunkhorst, H. (2014). *Critical Theory of Legal Revolutions: Evolutionary Perspectives*. p. 41.

1215 See Brunkhorst, H. (2014). *Critical Theory of Legal Revolutions: Evolutionary Perspectives*. p. 3.



road to further gradual evolution, periods of stasis operating under the parameters fixed by the normative constraints. They occur as a result of a crisis of maladjustment, when institutions and societal structures are badly adjusted.<sup>1216</sup>

Constitutions, in his view, are to be understood as "normative constraints on adaptation, and as such, they are not only evolutionary advances, but also revolutionary advances."<sup>1217</sup> I agree with Brunkhorst to the extent that constitutions are both revolutionary and evolutionary, or (r)evolutionary. In my view, however, constitutions are to be understood as *adaptations*, and as such they cannot be explained by the punctuated equilibrium thesis. In order to explain constitutionalism as an adaptation, we must explain the above-mentioned constitutional revolutions through a gradualist evolutionary perspective.

Brunkhorst himself acknowledges that constitutions perform an adaptive function, which is odd given his view that constitutions are normative constraints on gradual evolution: "constitutions are evolutionary universals" which "have a *functional* and a practical side."<sup>1218</sup> The functional aspect of constitutions relates to the task of stabilizing social systems in differentiated societies, structurally coupling the law with other social systems.<sup>1219</sup> But how could constitutions perform such a distinct function if they had not been selected precisely *because* they executed that duty so outstandingly? The punctuated equilibrium thesis cannot explain the performing of such a particular function because its main focus is not on the evolution of adaptations, but on the emergence of constraints that impose a new path to evolutionary change.<sup>1220</sup> In the same vein, Brunkhorst also states that constitutions are what Parsons defines as evolutionary universals, although acknowledging that his usage of the term is different from what the American sociologist meant. According to Brunkhorst, Parsons'

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1216 See Brunkhorst, H. (2014). Critical Theory of Legal Revolutions: Evolutionary Perspectives. p. 37.

1217 In Brunkhorst, H. (2014). Critical Theory of Legal Revolutions: Evolutionary Perspectives. p. 43.

1218 In Brunkhorst, H. (2014). Critical Theory of Legal Revolutions: Evolutionary Perspectives. p. 10.

1219 See Brunkhorst, H. (2014). Critical Theory of Legal Revolutions: Evolutionary Perspectives. p. 44.

1220 See Gould, S. J. (2007). Punctuated Equilibrium. p. 236.

stressed the functional (adaptive) aspect of the concept, leaving aside the fact that evolutionary universals also impose constraints on evolution.<sup>1221</sup>

It is important to notice that it is not only punctuated equilibrium that takes evolutionary constraints into account, but also gradualism. John Maynard Smith et al., for instance, acknowledge the role of developmental constraints in producing path dependence in the course of gradual evolution.<sup>1222</sup>

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1221 See Brunkhorst, H. (2014). *Critical Theory of Legal Revolutions: Evolutionary Perspectives*. p. 43.

1222 See Smith, J. M., Burian, R., Kaufman, S., Alberch, P., Campbell, J., Goodwin, B., Lande, R., Raup, D. and Wolpert, L. (1985). *Developmental Constraints and Evolution* 60(3), 265-287. The authors, however, recommend caution when attributing evolutionary trends to developmental constraints: "These considerations demonstrate the need for extreme caution in claiming that such constraints are responsible for evolutionary trends. Even when the evidence is strongest - for example, when the trend in question favors apparently less fit forms - selection may play the dominant role. The fact that selection is a multi-level process, capable of acting at the levels of genes, cells, individuals, demes, species, and so on, means that extremely subtle mechanisms for generating trends and patterns must be taken into account." In Smith, J. M., Burian, R., Kaufman, S., Alberch, P., Campbell, J., Goodwin, B., Lande, R., Raup, D. and Wolpert, L. (1985). *Developmental Constraints and Evolution* p. 282. Richard Dawkins also discusses the issue, stating that natural selection works with the materials at its disposal, building on the cumulative product of past evolution which, over long periods of time, creates a strong evolutionary pathway: "There is a big difference, then, between cumulative selection (in which each improvement, however slight, is used as a basis for future building), and single-step selection (in which each new 'try' is a fresh one). If evolutionary progress had had to rely on single-step selection, it would never have got anywhere. If, however, there was any way in which the necessary conditions for cumulative selection could have been set up by the blind forces of nature, strange and wonderful might have been the consequences. As a matter of fact that is exactly what happened on this planet, and we ourselves are among the most recent, if not the strangest and most wonderful, of those consequences. The essential difference between single-step selection and cumulative selection is this. In single-step selection the entities selected or sorted, pebbles or whatever they are, are sorted once and for all. In cumulative selection, on the other hand, they 'reproduce'; or in some other way the results of one sieving process are fed into a subsequent sieving, which is fed into . . . , and so on. The entities are subjected to selection or sorting over many 'generations' in succession. The end-product of one generation of selection is the starting point for the next generation of selection, and so on for many generations." In Dawkins, R. (1996). *The Blind Watchmaker: why the Evidence of Evolution Reveals a Universe without Design* New York: W. W. Norton & Company, Inc. p. 45.

My point, here, is not to stand against punctuated equilibrium *per se*, but to denote that it is not needed to explain how constraints can be imposed on an evolutionary path, channeling future evolution. Since gradual evolution builds on the traits present in a given population, it will not work from scratch, but based on those traits. In my perspective, constitutional revolutions can *only* be explained in a gradualist framework. Even though revolutions *do* accelerate the course of social evolution, we do not need to assume they are punctual bursts, since the gradualist paradigm can also explain different paces in evolution. In Dawkins's view, for instance, there is nothing in gradualism that requires evolution to run in a constant pace. In addition, he points out that there is no reason in evolutionary theory to believe that evolution occurs in a constant, slow speed. Given the right conditions, such as speciation events, but not restricted to them, evolutionary change can accelerate or stall, producing the stasis periods Gould identified in the fossil record.<sup>1223</sup> Sometimes, the evolutionary pressures imposed by the environment can be so harsh that evolution accelerates as a

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1223 See Dawkins, R. (1996). *The Blind Watchmaker: why the Evidence of Evolution Reveals a Universe without Design* pp. 243-251. The British zoologist even quotes R. A. Fisher in order to support his assertion that evolution can speed-up given the right conditions: "This chapter is about positive feedbacks in evolution. There are some features of living organisms that look as though they are the end-products of something like an explosive, positive-feedback-driven, runaway process of evolution. In a mild way the arms races of the previous chapter are examples of this, but the really spectacular examples are to be found in organs of sexual advertisement. Try to persuade yourself, as they tried to persuade me when I was an undergraduate, that the peacock's fan is a mundanely functional organ like a tooth or a kidney, fashioned by natural selection to do no more than the utilitarian job of labeling the bird, unambiguously as a member of this species and not that. They never persuaded me, and I doubt if you can be persuaded either. For me the peacock's fan has the unmistakable stamp of positive feedback. It is clearly the product of some kind of uncontrolled, unstable explosion that took place in evolutionary time. So thought Darwin in his theory of sexual selection and so, explicitly and in so many words, thought the greatest of his successors, R. A. Fisher. After a short piece of reasoning he concluded (in his book *The Genetical Theory of Natural Selection*): 'plumage development in the male, and sexual preference for such developments in the female, must thus advance together, and so long as the process is unchecked by severe counterselection, will advance with ever-increasing speed. In the total absence of such checks, it is easy to see that the speed of development will be proportional to the development already attained, which will therefore increase with time exponentially, or in geometric progression'. It is typical of Fisher that what he found 'easy to see' was not fully understood by others until half a century later. He did not bother to spell out his assertion

result, eliminating the less-fit organisms quicker. In other times, the evolutionary pressures might be so stable that the long periods of stasis identified by Gould and Eldredge can take place. Stasis can also be explained by a positive resistance to evolutionary change due to specific traits in a given organism that, despite the driving forces to the contrary, impose built-in constraints that counteract those forces and slow-down (or almost stop!) the pace of evolution.<sup>1224</sup>

Moreover, I am not convinced of Brunkhorst's mentioned examples of isolation that could produce the punctuation bursts. All the mentioned examples are related to *cultural* isolation within a particular society, not the kind of isolation that could explain *structural* evolution through the means of a social analog of speciation. The monks' isolated experiments with novel social formations before the Papal Revolution, the heretic corporations developed in isolated communities anticipating the Protestant Reformation, the Masonic lodges in Europe and America before the Atlantic Constitutional Revolutions and the communist and anarchist experiments were all *cultural* innovations produced *within* specific social conditions, not (yet!) *structural* innovations affecting the whole societal structure.

As such, they were, at the time of their emergence, pre-adaptive *cultural* (memetic) traits, novel memes within the memetic pool that would be slowly spread through the population through the mechanisms of cultural evolution (specially guided variation and biased transmission)<sup>1225</sup>. In time, the influence of these cultural traits could slowly affect institutions (a bottom-up process) and the societal structure as a whole. But the stabilization of the novel (now *structural*) traits could only occur as a result of natural selection of the higher-level societal entities (a top-down process) possessing traits conferring them positive differential fitness in comparison to other societies. The mere diffusion of memes does not affect the structure

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that the evolution of sexually attractive plumage might advance with ever-increasing speed, exponentially, explosively. It took the rest of the biological world some 50 years to catch up and finally reconstruct in full the kind of mathematical argument that Fisher must have used, either on paper or in his head, to prove the point to himself." In Dawkins, R. (1996). *The Blind Watchmaker: why the Evidence of Evolution Reveals a Universe without Design* p. 199.

1224 See Dawkins, R. (1996). *The Blind Watchmaker: why the Evidence of Evolution Reveals a Universe without Design* pp. 245-247.

1225 See Richerson, P. J. and Boyd, R. (2008). *Not by Genes Alone: how Culture Transformed Human Evolution*. p. 69.

of society; they must be widely spread and affect institutional practices in such a way that they provide structural changes.

As an example, we could mention Brunkhorst claims of diversified social experimentation before the Papal Revolution in the 11th century, the Protestant Revolution of the 16th century, the Atlantic Constitutional Revolution and the 20th century social revolutions. As described, these episodes are not *yet* structural (from the standpoint of each societal structure), but only new memes. Nevertheless, they progressively spread and affected societal structure when they changed social systems by altering their cognitive and normative assumptions.

There is another reason for not considering revolutionary episodes as punctuational bursts. Even if they do implement radical social changes in the structure of society, we cannot assume that they are more important than any past episode in the course of societal evolution. Each small evolutionary step that led to an adaptive set of functional traits is as *necessary* for the current state of affairs as any other. We cannot imagine the eruption of the French Revolution as it took place, for instance, without the previous advancement of French economy in the whole century before, which empowered the commercial bourgeoisie class.<sup>1226</sup> And we cannot imagine the quick spread of the ideals of religious tolerance, equality and freedom without the invention of the printing press about three centuries earlier.<sup>1227</sup> Maybe the National Assembly – which, following Sieyès's pamphlet, became the paradigmatic illustration of how constituent power should be democratically performed in order to define and agree upon a new Constitution – could never have *occurred* if the Estates General Assembly of Notables had not been established in Medieval times and had not been invoked at that precise time.<sup>1228</sup> Hardly could checks and balances, a central feature of modern constitutions, have existed without the limits to royal power previously imposed by the feudal charters of freedom, the most famous of which is the 1215 Magna Carta.<sup>1229</sup>

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1226 See Fukuyama, F. (2011). *The Origins of Political Order: from Prehuman Times to the French Revolution*. p. 347.

1227 See, e.g., Eisenstein, E. L. (2005). *The Printing Press as an Agent of Change*. Cambridge: Cambridge University Press; Cernica, N.-C. (2011). The Printing Revolution and the Beginning of Modern Time. *Euromentor*, 2(3).

1228 See Carlyle, T. (2007). The French Revolution. pp. 53-55; Kaiser, T. E. (1979). Feudalism and the French Revolution. pp. 211-212; Fukuyama, F. (2011). *The Origins of Political Order: from Prehuman Times to the French Revolution*. p. 350.

1229 See Thornhill, C. (2011). *A Sociology of Constitutions*. p. 51.

Any of these events, taken in isolation, cannot be mentioned as *the* catalytic event that paved the road to modern constitutions. And neither should the constitutional revolutions mentioned by Brunkhorst be understood as punctuated bursts that isolated some communities in the road that eventually led to constitutionalism. Revolutions are important events in this history, of course, but they are to be considered more as representative moments of important *underlying* societal changes in the legal and political system adjusting themselves to the complexity of increasing functional differentiation rather than punctuated bursts that, by *themselves*, set up normative constraints on further evolution. Many other events, besides these *constitutional moments*, to use the expression popularized by Bruce Ackerman,<sup>1230</sup> have *progressively* and *cumulatively*, through processes of cultural, social and structural selection, institutionalized normative constraints that paved the road for subsequent evolutionary steps. Revolutions are nothing but one of these steps.<sup>1231</sup> Important steps, but no more important than any other in the evolutionary path of constitutionalism.

Taking revolutions as more important events than the gradual legal and political institutions that evolved over time, producing functional structures that eventually equipped societies with a constitutional framework efficient enough to regulate and maintain functional differentiation is an assumption typical of the yet predominant theories of constituent pow-

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1230 See Ackerman, B. (1993). *We the People: Foundations*.

1231 Richard Dawkins illustrates the argument I am developing here by discussing the evolution of the eye, a marvelous example of how gradual evolution can produce complex functional traits: "Now, how do we account for the fact that just the right set of 1,000 steps were taken to result in the eye as we know it? Natural selection's explanation is well known. Reducing it to its simplest form, at each one of the 1,000 steps, mutation offered a number of alternatives, only one of which was favored because it aided survival. The 1,000 steps of evolution represent 1,000 successive choice points, at each of which most of the alternatives led to death. The adaptive complexity of the modern eye is the end-product of 1,000 successful unconscious 'choices'. The species has followed a particular path through the labyrinth of all possibilities. There were 1,000 branch-points along the path, and at each one the survivors were the ones that happened to take the turning that led to improved eyesight. The way-side is littered with the dead bodies of the failures who took the wrong turning at each one of the 1,000 successive choice points. The eye that we know is the end-product of a sequence of 1,000 successful selective 'choices'." In Dawkins, R. (1996). *The Blind Watchmaker: why the Evidence of Evolution Reveals a Universe without Design* p. 313.

er.<sup>1232</sup> Most of these theories assume that constitutions are given in a specific moment by a largely abstract entity such as 'the people', who has a *will* capable of designing *all* the legal and political framework for subsequent generations.<sup>1233</sup> For sure, the moment of constitution making is important, but what is scarcely taken into account in these theories is that they are a bare *description* of much more complex underlying sociological causes. The description of the constitution-giving moment as a political *re-boot* that *installs* a totally new regime from scratch is useful from the standpoint of legal and political internal operations as social systems, insofar as it offers a discourse of legitimacy that avoids questions concerning legitimacy and validity.

However, this description is meaningless from any standpoint *outside* the operations of the legal and political systems, particularly when we adopt an evolutionary stance. From a gradualist perspective, it does not make any sense to describe constitutions as a product of the will of such an abstract entity as 'the people', 'the nation' or any other. Constitutions have a long evolutionary history that is simply left aside in these theoretical descriptions. This is not to understate, as will be better discussed in the next section, the role of constitutions in institutionalizing mechanisms that distribute power and grant political representation, but to acknowledge that they are not necessarily the product of any will. *Constitutions are a gradual product of evolution.*

How should we understand revolutions, then? I think that the best approach to this theme, compatible with the evolutionary perspective herein developed, has been advanced by Theda Skocpol. Although departing from different assumptions, her main insight departs from the assumption that Constitutional revolutions are a product of *structural crisis*, resulting

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1232 See the excellent review by Spång, M. (2014). Constituent Power and Constitutional Order: Above, Within and Beside the Constitution.

1233 See, e.g., Spång, M. (2014). Constituent Power and Constitutional Order: Above, Within and Beside the Constitution. p. 22. As an example, see Antonio Negri's description of this approach towards the meaning of the constituent power: "One can approach the concept of constituent power through the democratic practices of modern revolutions and begin by looking at the popular organizational frameworks that are its expressions in the different revolutionary experiences, such as the constituent assemblies in the American and French revolutions or the Soviets in the Russian. Here we find that constituent power is an expression of the popular will, or, better, it is the power of the multitude. Democracy itself is thus inseparable from the concept and practice of constituent power." In Negri, A. (1999). *Insurgencies Constituent Power and the Modern State*. Minneapolis: University of Minnesota Press. p. vii.

from the failure of the legal and political systems to respond to objective circumstances arising in society.<sup>1234</sup> In this regard, an important issue related to the revolutionary origins of constitutionalism relates to the debate over structure and agency. Do revolutions stem from subjective action (agency) related to ideology and cultural values or from objective forces on which no one can exert conscious and meaningful impact (structure)?

Unlike Eric Selbin,<sup>1235</sup> who advocates that revolutions are mainly caused by intentional agents willing to build a new social order from scratch<sup>1236</sup>, other authors, such as Theda Skocpol<sup>1237</sup> and John Foran,<sup>1238</sup> stress the mutual interdependence between subjective action and structural reasons beneath revolutionary events. Foran's goal, for instance, is to "suggest the indispensability of the idea of culture in understanding revolutions and to simultaneously place this within a larger perspective that leads away from an equally one-sided rebuttal of the structural or political economic schools in theorizing revolutions."<sup>1239</sup> For him, it is necessary to take into account both agency and structure in order to understand revolution, acknowledging that "it is [...] critically important to link these discursive practices with actual social forces for the study of revolution"<sup>1240</sup>. According to Foran, before a revolution, different social groups elaborate a 'culture of

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1234 See Sanderson, S. K. (2005). *Revolutions: a Worldwide Introduction to Political and Social Change*. London: Paradigm Publishers. pp. 102-103.

1235 See Selbin, E. (1997). Revolution in the Real World: Bringing Agency Back in. In Foran (Ed.), *Theorizing Revolutions* (pp. 118-132). London: Routledge; Foran, J. (1997). Discourses and Social Forces: the Role of Culture and Cultural Studies in Understanding Revolutions. In Foran (Ed.), *Theorizing Revolutions* (pp. 197-220). London: Routledge.

1236 See, for instance, Selbin's claim: "Symbolic politics, collective memory, and the social context of politics—all profoundly voluntaristic constructions—are central to understanding and exploring revolutionary processes. What I want to propose here is that ideas and actors, not structures and some broad sweep of history, are the primary forces in revolutionary processes. Revolutions are human creations—with all the messiness inherent in such a claim—rather than inevitable natural processes." In Selbin, E. (1997). Revolution in the Real World: Bringing Agency Back in. p. 118 In the same vein, Foran also argues that revolutions result from voluntaristic action.

1237 See Skocpol, T. (1979). *States and Social Revolutions*. Cambridge: Cambridge University Press.

1238 See Foran, J. (1997). Discourses and Social Forces: the Role of Culture and Cultural Studies in Understanding Revolutions.

1239 In Foran, J. (1997). Discourses and Social Forces: the Role of Culture and Cultural Studies in Understanding Revolutions. p. 198.

1240 In Foran, J. (1997). Discourses and Social Forces: the Role of Culture and Cultural Studies in Understanding Revolutions. p. 202.



opposition' to the political regime, which spreads through many forms of pamphlets and manifestos which articulate the movement's ideology.

An example mentioned by him is the sequence of events that took place during the French Revolution. Before the 1789 upheaval, a public sphere of fiction writers and philosophers emerged, and soon enough they became popular even among the lower classes. Literacy rate rose from 29% to 47% among men and from 14% to 27% among women, a circumstance that facilitated the diffusion of the revolutionary ideal.<sup>1241</sup> However, ideas can only have an enduring impact if they can be internalized within political institutions (the structural aspect): "culture must be rigorously linked to social structure and imaginatively synthesized with political economy and international contexts."<sup>1242</sup>

Theda Skocpol goes beyond Foran's suggestion. According to her, revolutions are the outcome of objective conditions, especially arising from the relationship between the economy and politics. While she acknowledges that many individuals and groups act deliberately to bring out the revolutionary outcome, the fact is that no group or ideological perspective has primacy on explaining the revolutionary outcome. Their intentional action is not a sufficient condition either to carry out revolutionary success or to explain the aftermath institutions. Participants take place and *do* play a causal role in the conflict, but the outcome is never defined by their desire, due to the complexity of the social situations presented in revolutionary times.<sup>1243</sup> But Skocpol's main concern is on the functional crisis of the state in responding to pressures coming from society – and, more specifically, the economy.<sup>1244</sup> Inefficient responsiveness to social dynamic can undermine societal structure and lead to social revolutions.<sup>1245</sup> Revolutions are not one event that changes everything, but the abrupt breakdown of

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1241 See Foran, J. (1997). *Discourses and Social Forces: the Role of Culture and Cultural Studies in Understanding Revolutions*. p. 203.

1242 In Foran, J. (1997). *Discourses and Social Forces: the Role of Culture and Cultural Studies in Understanding Revolutions*. p. 213.

1243 See Skocpol, T. (1994). *Social Revolutions in the Modern World*. New York: Cambridge University Press. p. 111.

1244 See Skocpol, T. (1979). *States and Social Revolutions*. pp. 14-18.

1245 Here, it is important to notice the distinction made by Skocpol between social and political revolutions. Social revolutions involve the state breakdown as a result of structural crisis, while political revolutions involve merely the rebellion against the government. In her own words: "Social revolutions are rapid, basic transformations of a society's state and class structures; and they are accompanied and in part carried through by class-based revolts from below. Social revolutions are set apart from other sorts of conflicts and transformative

old political structures that became – *gradually* – incapable of responding efficiently to changing social circumstances. In this sense, Skocpol prefers to attribute the *emergence* of revolutionary situations to the disjunction between the state and social factors. Following Wendell Phillips, she says that "Revolutions are not made; they come."<sup>1246</sup>

Skocpol also emphasizes the causal role of international influence in the development of the social conditions that eventually lead to social revolutions. States respond to both internal and external pressures, coming from its relationship not only with the economy, but also with other states. As she says, "developments within the international states system as such – especially defeats in wars or threats of invasion and struggles over colonial controls – have directly contributed to virtually all outbreaks of revolutionary crises."<sup>1247</sup>

Skocpol's theory fits amazingly well with an evolutionary gradualist paradigm. First of all, Skocpol does not ignore that revolutions have a symbolic aspect related to the cultural diffusion of particular ideologies. Although this is not her main concern, she thinks that the spread of revolutionary ideas for sure influences the outcome of social revolutions, even though their outcome might not be in tandem with the participant's desires. *Social evolution is blind*, in the sense that no one knows what the exact outcome of a particular revolution will be. Revolutionary ideas influence the revolution by affecting the structural relationship between the state and other social systems (not only the economic system, as sometimes Skocpol's analysis seems to claim). And revolutions accelerate the process, by structurally stabilizing the legal and political systems and other social systems through the enactment of novel institutions shaping a formal constitution. This is a two-way road: ideology affects societal structure (bottom-up) while being affected by it (top-down) as well. In addition, Skocpol acknowledges the role of the international context in producing favorable circumstances for the emergence of revolutionary episodes. This is also compatible with the evolutionary theory so far developed, as I have argued

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processes above all by the combination of two coincidences: the coincidence of societal structural change with class upheaval; and the coincidence of political with social transformation. In contrast, rebellions, even when successful, may involve the revolt of subordinate classes - but they do not eventuate in structural change. Political revolutions transform state structures but not social structures, and they are not necessarily accomplished through class conflict." In Skocpol, T. (1979). *States and Social Revolutions*. p. 4.

1246 See, e.g., Skocpol, T. (1979). *States and Social Revolutions*. p. 12.

1247 In Skocpol, T. (1979). *States and Social Revolutions*. p. 23.

that the international context is an important environmental element in the selection of constitutional-states.

Besides that, Skocpol's contribution also allows us to enlighten the idea of constituent power from an evolutionary perspective. Constitutions do not derive from the will of anybody, contrary to what standard constituent power theories claim. Neither 'the people', nor the 'nation', and not even the revolutionaries who participate in the political upheaval, institute a constitution according to their *will*. This voluntaristic perspective is mistaken, since constitution turns out to be not only the result of a political lockdown and normative compromises, but also the product of tradition. Even if constitutions usually break with the tradition and inaugurate new practices, they also work with the already existing institutions and cultural conventions in order to affirm itself as a legitimate order. Being the product of normative compromises, constitutions are sometimes what none of the participants really *wanted*, but are accepted for various – and not always congruent – reasons which made sense in the moment of constitution-making. As Przeworski brilliantly asserts:

"But what could it mean that 'the people governs itself'?<sup>1</sup> Note that 'the people' always appears in this phrase in the singular, as *le peuple*, *el pueblo*, *das Volk*, *lud*, and so on. 'We, the People' is a single entity. This people in the singular is the only authority that can enact laws to which it would be subject. (...)

Yet the people in the singular cannot act. As the Demiurge, the people are an apathetic one. This is why Rousseau (1964 [1762]: 184) needed to make terminological distinctions: 'As for those associated, they collectively take the name of the people, and are called in particular Citizens as participants in the sovereign authority and Subjects as submitted to the laws of the State.' Kant (1891: 35) made similar distinctions when he spoke of everyone's liberty as a man, equality as a subject, and self-dependency (self-sufficiency, autonomy) as a citizen. Nevertheless, how is the will of the people in the singular to be determined by people in the plural? One is free when one rules oneself, but is one free when the people rules?"<sup>1248</sup>

What does 'the people' *desire* when a particular constitution is enacted? Did the founding fathers of the American constitution want to establish a democracy in the current sense of the term? Did the French want some-

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1248 In Przeworski, A. (2010). *Democracy and the Limits of Self-Government*. p. 19.

thing like modern representative democracy? As Przeworski reminds us, what was built was far different from *any* of the desires of the revolutionary participants. The people's will is the result of an equilibrium achieved through the mutual adjustment of many political decisions.<sup>1249</sup>

Constitutions are not the product of anyone's particular will. They are the result of *many* particular wills,<sup>1250</sup> cultural traditions, local and international social, political and economic circumstances. This is not to say that constitutions are undemocratic, but to acknowledge that democracy is far different from a naïve conception deriving from a voluntaristic Rousseauian perspective. Democracy is performed through constitutions because, as will be discussed in next section, constitutional societies progressively include every citizen as an equal participant of the political system and as potential participants of every social system – something that in no previous historical moment could have been possible. If we aspire to understand how constitutions came to be what they are, we must abandon voluntaristic assumptions and adopt a theoretical stance more capable of coping simultaneously with elements coming from many ontological levels involved in social reality. But none of these elements, isolated, can explain constitutional revolutions. If I have succeeded in my exposition, only an evolutionary approach that takes into account the pressures coming from psychological, cultural, social, structural, local and international elements can satisfactorily explain the emergence of constitutions.

#### 5.4. *Egalitarianism Strikes Back: Inclusion and Exclusion in Constitutional Societies*

The protection of functional differentiation demands a specific form of political organization capable of enforcing law, securing property rights and freedom of contracts, offering public services, and building the infrastructure needed for the well-functioning of economic activity.<sup>1251</sup> The very existence of the state also poses a free rider problem, though; how can politi-

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1249 See Przeworski, A. (2010). *Democracy and the Limits of Self-Government*. p. 5.

1250 See, generally, on this point, Sunstein, C. R. (2009). *A Constitution of many Minds: why the Founding Document doesn't Mean what it Meant Before*. Princeton: Princeton University Press; Waldron, J. (2004). *Law and Disagreement*; Waldron, J. (1999). *The Dignity of Legislation*.

1251 See, on this point, Reinert, E. S. (1999). The role of the state in economic growth. *Journal of Economic Studies*, 26(4/5), 268–326.

cal institutions be organized in such a way that they do not steer other organizations to transfer their resources to the hands of elite power holders? This is a huge problem to be dealt with, insofar as the specification of functional differentiation within a constitutional society depends on its solution; whenever a particular state coopts resources and diverts them to a specific social segment, there is a threat of dedifferentiation, insofar as the logic of all organizations become subject to the rationalization of political power – and, as a result, to one kind of rationalization drift.

How can a constitutional society monitor this risk? One feasible possibility is the systematization of legal and political institutions that, simultaneously, *spread* and *constrain* political power. Institutions such as the separation of powers (functions) between the Executive, Legislative and Judicial branches, regular elections, the majority rule in collegiate organs, and the institutionalization of a supermajority requirement to amend constitutions are obvious attempts (though not always well-succeeded) to counter the risks of free riding within the political system.<sup>1252</sup> From the standpoint of law, these institutions impose legal parameters according to which political power can be performed and, as a result, be disciplined.

In order to protect functional differentiation and the risk of free riding, the political system must be non-authoritarian, or otherwise it can be easily coopted by a specific elite who tries to divert economic resources to the specific segment it belongs. Again, inspired in Sciulli, it is possible to say that a political system follows a non-authoritarian direction whenever it adopts a collegial form of organization. The state's most representative organs, for instance, must be organized under a representative structure that minimally presents itself as a collegiate formation whose members are *all the citizens* of a constitutional society. The constitutional rules that regulate suffrage, parliamentary participation, division of powers, the right to be in office, and so on, are nothing but procedural rules in the very sense that Sciulli stipulates the term in his proposed societal constitutionalism.<sup>1253</sup>

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1252 See, on this point, Przeworski, A. (2010). *Democracy and the Limits of Self-Government*. pp. 125-148; Cooter, R. (2002). *The Strategic Constitution*. pp. 211-239.

1253 It is odd, however, to notice that he does not see his sociological framework as a theoretical endeavor that can be applicable to the political system as such. According to the sociologist, these "liberal" principles are substantive, not procedural and, as such, are subject to the drift of rationalization. See, e.g., Sciulli, D. (1992). *Theory of Societal Constitutionalism: Foundations of a non-Marxist Critical Theory*. pp. 60-61.

Likewise, Adrian Vermeule<sup>1254</sup> describes the constitution as a structure that balances systemic effects within the political structure, enabling the legal order to constrain political institutions in such a way that even when all institutions foster the interests of their own members, they can, at least in principle, work toward public interest. His argument is inspired on the Madisonian idea advanced in *The Federalist No. 51* that institutions should be arranged in such a way that the dispersal of power among departments would enable each of them to resist any attempt of tyranny. Since we cannot assure that institutions will be ruled by individuals pursuing the public interest, we should aim for a "second best" solution, in which each institution, promoting its own institutional ambition, produces the public good.<sup>1255</sup> The constitution institutionalizes a public legal framework through which institutions operating on a lower-level produce public good to the overall system. In this case, the regulatory system of public checks and balances, judicial review, fundamental rights and regular elections, when regularly operating, *can* produce an inclusive political system in which political power regulates other social systems while being protected from being usurped by political free riders. Whenever this happens, the protection of functional differentiation is to be expected.

At the level of political participation, in what concerns the organizations that participate in the systemic communications of the political system as members of the political system, I agree with David Sciulli. Most organizations participating on the political system, such as parties, unions, and associations, should in principle adopt the collegial formation as a way to ensure that their very process of will formation is collectively representative, institutionalized through procedures in which its members participated fairly according to previously known procedures (according to Fuller's rules). Whenever organizations participating in the political system (par-

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1254 See Vermeule, A. (2011). *The System of Constitution* (Kindle ed.). Oxford: Oxford University Press. p. 348.

1255 See Vermeule, A. (2011). *The System of Constitution*. p. 359. However, Vermeule criticizes Madison on two accounts. First, he considers that the Madisonian scheme does not take into account that the ambitions of individual officials might not be aligned with the interests of the institutions they staff – after all, the officials might be free riders encroaching institutions with the purpose of subverting their power in order to revert resources to grant to themselves a better economic position. Second, he considers that Madison's argument does not discuss well *how* distinct political institutions must interact in order to produce the overall "optimum of checks and balances." In Vermeule, A. (2011). *The System of Constitution*. pp. 360-373.

ties, unions, associations) adopt the collegial form of organization, they better protect functional differentiation insofar as they are in a better position to claim for the protection of rights. History is full of examples showing how collegial formations stood for non-authoritarian politics, ranging from the feminist movement's claims for egalitarian rights to the workers' unions fights for better labor conditions<sup>1256</sup>. The role of associations such as the National Association for the Advancement of Colored People (NAACP) in the struggle for civil rights in the United States cannot be dismissed.<sup>1257</sup> In Brazil, the role of unions, universities and other associations as a political force in the advancement of democracy is well-known.<sup>1258</sup>

Political entities and civil society political institutions adopting collegial forms of organization protected under law are more prone to protect functional differentiation than states not organized according to these principles. In order to back this point, I refer to the work by Daron Acemoglu and James Robinson, who argue that the adoption of *inclusive* political institutions is a necessary precondition for successful and also *inclusive* economic institutions. In *Why Nations Fail*, they sustain that whenever political institutions, albeit centralized in the form of a political states, are inclusive and distribute power broadly in society, the economy also tends to be inclusive.<sup>1259</sup> Democratic politics generates economic inclusion because, under the rule of law and balanced political competition, no single economic enterprise is favored instead of others in virtue of having privileged status. As a result, no one can legitimately block the process of creative destruction – as Joseph Schumpeter called it – that continuously replaces old economic structures, procedures and units by newer ones, producing new markets and opportunities of economic inclusion.<sup>1260</sup> Following Schumpeter's insight, Acemoglu and Robinson demonstrate that the logic of cap-

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1256 See, generally, Hobsbawm, E. J. (1989). *The Age of Empire* New York: Vintage. pp. 112-218; Hobsbawm, E. J. (1995). *Age of Extremes*. London: Abacus. pp. 312-317.

1257 See Ackerman, B. (2014). *We the People: The Civil Rights Revolution*. p. 90.

1258 See, e.g., Barbosa, L. (2012). *História Constitucional Brasileira: Mudança Constitucional, Autoritarismo e Democracia no Brasil pós-1964*. Brasília: Câmara dos Deputados, Edições Câmara. p. 169.

1259 In Acemoglu, D. and Robinson, J. (2012). *Why Nations Fail: the Origins of Power, Prosperity and Poverty*. pp. 81-82.

1260 In Joseph Schumpeter's own words: "the history of the productive apparatus of a typical farm, from the beginnings of the rationalization of crop rotation, plowing and fattening to the mechanized thing of today – linking up with elevators and railroads – is a history of revolutions. So is the history of the productive apparatus of the iron and steel industry from the charcoal furnace to

italism, whenever not blocked by political forces, fosters creative destruction. One example of this process is the Industrial Revolution, which was one huge factor explaining the fall of aristocracies in Europe. The spread of novel industries directed economic resources from the land owned by the privileged nobility to the newly devised factories. As a result, land became a devalued asset and the wage of rural workers had to be increased, insofar as the workers now had the option to work for slightly better wages in the cities. New businessmen also challenged their trading privileges. The artisans also lost much during the Industrial Revolution, as the more efficient machines menaced their privileges and living standards.<sup>1261</sup>

Creative destruction clearly produces winners and losers, and the losers thrive to keep their privileged situation. The artisans and aristocratic elite struggled to oppose, without long-term success, the path of industrialization. In some countries, such as 18th century England and 19th century France, where a legal framework protecting economic innovation and property backed the pioneering economic model rights, the novel economic system prospered. In other countries, where the aristocracy had more political power and almost no protection under the rule of law, industrialization could not develop in an effective manner.<sup>1262</sup>

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our own type of furnace, or the history of the apparatus of power production from the overshot water wheel to the modern power plant, or the history of transportation from the mailcoach to the airplane. The opening up of new markets, foreign or domestic, and the organizational development from the craft shop and factory to such concerns as U.S. Steel illustrate the same process of industrial mutation – if I may use that biological term – that incessantly revolutionizes the economic structure *from within*, incessantly destroying the old one, incessantly creating a new one. This process of Creative Destruction is the essential fact about capitalism. It is what capitalism consists in and what every capitalist concern has got to live in. . . . Every piece of business strategy acquires its true significance only against the background of that process and within the situation created by it. It must be seen in its role in the perennial gale of creative destruction." In Schumpeter, J. (2012). *Capitalism, Socialism and Democracy* (Kindle ed.). New York: Start Publishing. p. 1823.

1261 See Acemoglu, D. and Robinson, J. (2012). *Why Nations Fail: the Origins of Power, Prosperity and Poverty*. pp. 84-85.

1262 In Acemoglu and Robinson's words: "In England, industrialization marched on, despite the Luddites' opposition, because aristocratic opposition, though real, was muted. In the Austro-Hungarian and the Russian empires, where the absolutist monarchs and aristocrats had far more to lose, industrialization was blocked. In consequence, the economies of Austria-Hungary and Russia stalled. They fell behind other European nations, where economic growth took off during the nineteenth century." In Acemoglu, D. and Robinson, J. (2012). *Why Nations Fail: the Origins of Power, Prosperity and Poverty*. p. 85.



The process of creative destruction, in this sense, depends not only on legal institutions that protect competition and innovation, but also on a political organization that does not drive power to benefit a particularly protected coalition. This is precisely what constitutions do by assigning universal rights to all. Of course, the losing elites will always try to divert power to their own benefit even within a constitutional democracy. Whether they will succeed depends on how political power is distributed among individuals and groups (universities, unions, associations and so on) in order to effectively block any attempt to overthrow innovation. And, obviously, the winners and losers of the past change over time. Over-protection of property rights can also lead to abuse and block innovation in such a way that the institutions of the past need to be redesigned under the conditions of the present. Think of streaming media in the internet and the motion picture lobby, for instance, or how the industry businessmen, an avant-garde class in the Industrial Revolution, try to influence political power in order to protect their businesses against (foreign or internal) competition. The 19th century liberals who argued for free enterprise and for the right of association were the first to oppose unionization, as they would be economic losers if workers gained more political and economic inclusion.<sup>1263</sup>

Economic inclusion and political inclusion cannot be achieved unilaterally. Either both are attained, or none of them can be realistically and perennially engineered. Economic exclusion leads to political exclusion, and vice-versa, insofar as economic power can frequently be used to gain political power, and political power can be a powerful shortcut to gain economic benefits<sup>1264</sup>. One role of the modern legal system is to guarantee that economy and politics do not entangle themselves in such a way that leads to economic and political exclusion. When operating properly, constitutions institutionalize a legal framework in which all social systems become more inclusive, given the fact that it is set under the assumption that the political power holders are to be constantly monitored. Power holders are limited by the attributions of their office and can be judicially prosecuted and lose elections whenever they attempt to subvert social order by trespassing the legal limits of their attributions. This is not to say that democratic institutions always work; but they *do* institutionalize counterfactual constraints on attempts to hijack political power – and, by doing

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1263 See Hobsbawm, E. J. (1962). *The Age of Revolution*. 1-361.

1264 See, e.g., Friedman, M. (2002). *Capitalism and Freedom* (Kindle ed.). Chicago: The University of Chicago Press. pp. 7-21.

so, they protect other social systems, which can operate autonomously and respond to the *steering* of law, not as *determined* by other social system.

The French Revolution is one major historical example mentioned by Acemoglu and Robinson that illustrates their thesis that inclusive political institutions pave the way to inclusive economies. Before 1789, France had been ruled by an absolutist monarchy for about three centuries, and it faced a major fiscal crisis during most of the 18th century. The tax system deliberately encouraged rent seeking, since it motivated wealthy individuals to spend their money on heritable offices and not to focus on technological innovation, as in England.<sup>1265</sup> Besides that, the French fiscal system was also highly regressive, taxing the poor in order to support the aristocrats, who were largely favored by tax exemptions. The absolutist monarchy concentrated much power in enacting new taxes, since the only bodies designed to oppose the king had no real power to do so. As in England, one of the institutional functions of the Estates-General was to approve new taxes, but the crown was so strong that it could impose taxes without calling the representative organ – which, in fact, has not been convoked between 1614 and 1789. The provincial sovereign courts, judicial bodies that registered novel taxes, could in principle oppose the king, but the monarch had the power to overcome the courts' rulings, which, therefore, posed as little more than a mere embarrassment to the crown.<sup>1266</sup>

The political concentration of powers, especially after the Peace of Westphalia (1648), paved the road to an even more extractive economic system. The revocation of the Edict of Nantes by the Edict of Fontainebleau, in 1685, reinstated religious intolerance against Protestants and had the effect of expelling skilled Huguenots to other regions of Europe. The central government developed even more power to declare new taxes through the intimidation of the provincial courts, crushing the almost null opposition posed by them.<sup>1267</sup> As a result, "the increased power of the French state by the early eighteenth century led it to trample on the rights of individuals, their property rights first and foremost."<sup>1268</sup> The growth of the absolute state was accompanied by a loss of economic productivity, resulting from

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1265 See Fukuyama, F. (2011). *The Origins of Political Order: from Prehuman Times to the French Revolution*. p. 342.

1266 See Fukuyama, F. (2011). *The Origins of Political Order: from Prehuman Times to the French Revolution*. pp. 343-344.

1267 See Fukuyama, F. (2011). *The Origins of Political Order: from Prehuman Times to the French Revolution*. p. 346.

1268 In Fukuyama, F. (2011). *The Origins of Political Order: from Prehuman Times to the French Revolution*. p. 346.

the lack of investor confidence caused by the arbitrary use of political power.<sup>1269</sup> The extractive political system had created a dysfunctional economy, paving the road to the fiscal crisis of the *Ancien Régime*.

The convocation of the Estates-General in May 1789 was a desperate attempt to solve the government's financial problems. When the Estates-General gathered in 1789, soon it became clear that no agreement could be reached, since the regular procedure to assign one vote to each Estate (the clergy, aristocrats, and 'the rest') had been considered unfair by the Third Estate, which comprised more than 97% of the French population.<sup>1270</sup> Gaining support in the streets – especially after the famous storming of the Bastille in July 1789 –, the Third Estate redefined itself as the *Communes* and, later on, as the National Constituent Assembly, which proposed the adoption of a constitution which abolished the feudal system, removed restrictions imposed by the guilds on the free exercise of professional activities, and institutionalized the separation between church and state. The French destroyed the extractive economic institutions by adopting – not without the political instability that followed the next decades – inclusive political institutions, opening the way for France to take part of the industrialization process in the 19th century.<sup>1271</sup>

The case of France is important, from an evolutionary perspective, because it shows how constitutions – the adoption of political and legal institutions constraining the use of political power and channeling it in a way to free the operations of other social systems – played a major role in protecting and advancing the process of functional differentiation. By the end of the 18th century, England already had political institutions inclusive enough (although still not democratic, since they still adopted income and property as a requirement for suffrage rights and were quite aristocratic for today's standards)<sup>1272</sup> to provide for inclusive economic institutions, paving the road for the industrial revolution. As a result, it was the first to react to the benefits of industrialization, gaining an advantage over other nations not only economically, but also militarily. After the French Revolution, France also reaped the benefits of a better functioning economy

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1269 See Fukuyama, F. (2011). *The Origins of Political Order: from Prehuman Times to the French Revolution*. p. 347.

1270 See Acemoglu, D. and Robinson, J. (2012). *Why Nations Fail: the Origins of Power, Prosperity and Poverty*. p. 286.

1271 See Acemoglu, D. and Robinson, J. (2012). *Why Nations Fail: the Origins of Power, Prosperity and Poverty*. p. 288.

1272 See Przeworski, A. (2010). *Democracy and the Limits of Self-Government*. p. 51.

and institutional innovation. As soon as in August 1793, the invention of mass conscription – an unimaginable institution in the feudal world in which conscription depended on a series of manorial agreements – allowed the new country to defend itself against counterrevolutionary attacks from Prussia and Austria and, later on, under the command of Napoleon, to expand France's borders.<sup>1273</sup>

If Christopher Boehm is correct, our Pleistocene ancestors lived in egalitarian communities as a result of a political revolution that kept the alpha males constantly monitored. By doing so, it warrants that no one is above no other else. The political and legal institutions associated to constitutionalism do the same, but not only at the level of individuals, granting *equal* individual rights of *freedom*, but also at the societal level of social systems, regionally segmented as constitutional societies. They institutionalize normative conditions through which the political system operates heterarchically, through horizontal couplings with other social systems. The political system has no primacy over any other system. At the meso-dynamic and micro-dynamic level, this means that the protective institutions of constitutionalism must also ensure that no one has a special status granted due to belonging to a specific social stratum.

This is why constitutionalism brought egalitarianism back to the course of human history. In order to protect functional differentiation, it must be assured that social systems will operate according to their own functional criteria. One condition for such achievement is that participation opportunities are assigned to all citizens; otherwise, the inner logic of a specific system would be partially determined by *other* system. If participation in the economic system, for instance, depends on formal education and education is a resource restricted to an economic elite justified on religious grounds, then opportunities in the economy are restricted to the elite members. As a result, the economy operates according to a religion's metaphysics, and not solely on economic grounds. In addition, by restricting the participation individuals in the economic system, the *a priori* denial of access to participants reduces the volume of economic operations, turning out to be an inefficient arrangement from the standpoint of the economic system. The same could be said in respect to other social systems: exclusion of participation from politics because of lack of economic resources (as it occurred in 19th century England, for instance) also undermines the political system, for it becomes less legitimate, since the opportunities of politi-

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1273 See Acemoglu, D. and Robinson, J. (2012). *Why Nations Fail: the Origins of Power, Prosperity and Poverty*. p. 292.

cal communication are restricted to a small sector of the population, which become over-included. Not only the excluded mass is relegated to a second-class citizenship status, but also the political system's identity becomes partially determined by the economic system, biasing its own operations.

As a result, functional differentiation depends on promoting inclusion by granting universal access to the benefits of all functional systems.<sup>1274</sup> This is not only a demand coming from persons, but also an imperative for the maintenance of functional differentiation, insofar as growing exclusion channels functional benefits (money, education, access to medicine, and so on) to specific segments. Functional differentiation becomes endangered by increasing exclusion both because the systemic operations become determined by other systems' operations (systemic corruption) and by criteria of status typical of pre-modern times. In this sense, the maintenance of functional differentiation requires an egalitarian dynamic sustained in the delicate balance provided by formal constitutions.

It is worth noting that the concept of constitution devised here guards *some* resemblance to Ferdinand Lassalle's concept of constitution.<sup>1275</sup> For him, constitutional questions are related to how political power is distributed in a society. Being a realist, Lassalle argued for a critical distinction between the formal constitution – which, he claimed, is nothing more than a sheet of paper –, and the material constitution, which mirrored the power relationships existing in a given society. In a sense, Lassalle is right; the constitution is a product of power relations. Nonetheless, the constitution is not a mirror of those relations, but a product of the conflict over its normative meaning.

A constitution can only perform its function of protecting functional differentiation whenever the power distribution in a given *constitutional society* is balanced in such a way that no group can, alone, define what the constitution is. The structure of constitutional checks and balances, political participation, and attribution of rights is devised precisely to avoid any attempt to overthrow its normative order. The constitution must empower as many political organizations as possible in order to resist any attempt of encroachment within the political order. More than a mirror of power relations, the constitution sets how the political game is to be played and, when effectively implemented, it can, through political compromises be-

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1274 See Neves, M. (2013). Transconstitutionalism. p. 182; Luhmann, N. (2013). *Theory of Society*. pp. 16-27.

1275 See Lassalle, F. (2003). *¿Qué es una Constitución?*. Bogotá: Editorial Temis.

tween competing actors over its meaning, protect its own autonomy. But the constitution can only set the rules of the political game when the players agree to maintain the constitutional order and have the institutional power to monitor free riders.

Of course, we cannot be naïve and assume that the elites will not try to subvert the constitution to their own favor. Without strong resistance, it is expected that sooner or later individuals will attempt to do so, specially through constitutional interpretation. When institutions are operating regularly, it is expected that the system of checks and balances will repel these attempts as illegal, but this state of affairs is not to be assumed as given. Institutions can – and unfortunately will – be used to divert resources for their members. The efficiency of constitutional provisions and institutions to block these attempts is a determinant factor in upholding the balance of power.

Recently, Brazil has repeatedly seen successful attempts to interpret the constitution in order to grant economic benefits to certain classes of actors. In some cases, judges ruled in their own favor that they had the right, not granted by the legislation or the constitution, to meal vouchers and housing aid.<sup>1276</sup> In addition, a recent study from a research group from the University of Brasilia showed that, instead of deciding issues concerning basic rights, most constitutional cases in the Brazilian Supreme Court discussed legal issues concerning benefits to class entities, such as associations of civil servants<sup>1277</sup>. In a sense, like the Manambu elite in Avatip (Papua New Guinea) manipulated the shared cosmology in order to divert resources to themselves and concentrate power, interest groups may also manipulate constitutional meaning to grant more privileges to themselves.

The concrete, constant and institutional subversion of the constitutional order to legitimate the distribution of social resources to an elite increases the risk that the constitution becomes unable to maintain functional differentiation. Whenever this is the case, constitutions become nothing but a mere *status quo* legitimizing device, incapable of performing its sociological function. The constitution becomes subjected to manipulation by the over-included holders of political and economic power, and, as such, be-

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1276 See, e.g., the CNJ Resolution 199, approved on October 7, 2014, and the CNJ Resolution 133, approved on June 21, 2011.

1277 See Benvindo, J. Z. and Costa, A. A. (2014). *A Quem Interessa o Controle Concentrado de Constitucionalidade? O Descompasso entre Teoria e Prática na Defesa dos Direitos Fundamentais*. Brasília: Universidade de Brasília.

comes helpless as a device to grant the egalitarian inclusion of all. It becomes not a functional, but a merely symbolic constitution:

"In this sense, symbolic constitutionalization also presents itself as an ideological mechanism that covers the lack of autonomy and inefficiency of the state political system, above all in relation to particular economic interests. The law becomes subordinated to politics, but to a fragmented politics, incapable of consistent generalization and of operational autonomy."<sup>1278</sup>

Constitutions are the modern cosmology of functionally differentiated societies. As argued by Flannery & Marcus, pre-modern societies lived under the tenets of a naturally given religious cosmology which defines the social identity of a community. In pre-modern hierarchical societies, the cosmology that, in hunter-gatherer bands had provided justification for revolts against bullying leaders, slowly became subject to political cooptation by a ruling elite. Being unchecked as a result of political power concentration, the cosmology became a justification for inequality. Constitutions also perform this cosmological role, defining its own subjects and the rules that design political power. They institutionalize rules that bind everyone to its meaning, replacing religions as a source of normative validity. Unlike pre-modern societies, however, in democratic constitutions operating under ideal circumstances, where political power is in fact distributed and performed inclusively, no elite has the power to subvert the meaning of the constitutional text to its own favor. Constitutions perform a normative role because they stipulate a set of rights and a political framework which are, albeit not ideal *from the standpoint of any considered group* because it does not grant privileges to any particular faction, a second-best response to any other institutional arrangement that assures privilege to a single elite. As our prehistoric ancestors – in Boehm's argument – preferred to accept an egalitarian logic rather than to become subordinated to an alpha male, also in modern times it is preferable to live in an egalitarian institutional world rather than to become legally and politically subordinated to an elite. The logic of power is astonishingly similar in both cases.

In a sense, this is precisely the underlying postulation in the 'original position' argument John Rawls advances in his *A Theory of Justice*. Under the conditions of uncertainty featured in the original position, individuals would do better if they chose a set of principles assuring that no one would have more rights than anyone else (first principle) and that econo-

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1278 Neves, M. (2011). *A Constitucionalização Simbólica*. p. 151.

mic inequalities would be allowed to the degree that they do not violate the first principle and do not revert back to a worst off scenario (the difference principle). No rational individual would agree to live in different circumstances insofar as they would not know in advance how they would fare in the real world. Even if we do not agree with Rawlsian thought and disagree about his proposed two principles of justice, he does have a point. If individuals had two choices to make – living in a hierarchical society where you can randomly be part of an elite or be part of a deprived group, or living in an egalitarian society where you have rights of political and economic participation, even if subjected to some economic inequality, the odds are higher that individuals would prefer the second institutional scheme.

In my view, Rawls' argument is to be understood as a hypothetical construction simulating the conditions under which political power is dispersed and no elite can reasonably assume that it will be capable of reaping social and economic benefits without facing strong resistance. Whenever resistance is strong enough to keep elites under a *tight* leash, fundamental rights can be realistically assigned and egalitarianism can be maintained. Elites accept the constitutional setting insofar as they cannot do better without facing the risk of deposition from their privileged situation, and other individuals accept it because they are in a better position.

Constitutions are also 'cosmological' in the sense advanced by Flannery & Marcus insofar as they provide a legitimate foundation for the exercise of political power. Constitutions are strong symbolic markers that signal inclusion within a particular polity and provide respect and worthiness for the political system, structuring the foundations of cooperation within a particular constitutional society.<sup>1279</sup> As Rawls would say, constitutions institutionalize the liberal principle of legitimacy, granting that "the exercise of political power is fully proper only when it is exercised in accordance with a constitution the essentials of which all citizens as free and equal may reasonably be expected to endorse."<sup>1280</sup>

Under the modern conditions of deep cultural pluralism resulting from functional differentiation, however, the legitimation basis provided by a constitution as a cosmology cannot be assigned to a comprehensive doctrine such as a specific religion or a *substantive* moral philosophy. This is why Rawls proposes that constitutions, being the core of public reason, are

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1279 See Balkin, J. M. (2011). *Constitutional Redemption: Political Faith in an Unjust World* (Kindle ed.). Cambridge: Harvard University Press. p. 477.

1280 In Rawls, J. (2005). *Political Liberalism*. p. 137.



freestanding. They do not rely upon a particular comprehensive doctrine, but on a political conception of justice based on rights and normative principles embraced by all.<sup>1281</sup>

Constitutional cosmology is egalitarian in two senses. Firstly, its substantive tenets are backed on egalitarian provisions that build on the assumption of an overlapping consensus<sup>1282</sup> that constitutes the core of a constitutional society's identity. It is a thin consensus, able of being coupled with many philosophical, moral and religious doctrines, in which the ideals of freedom and equality are prominent. From the functionalist meso-level perspective, these ideals protect spheres of systemic operation, assuring both freedom and equality to them, but also constraining them in order to protect the overall integration of the constitutional society (macro-dynamic level).

From the perspective of citizens, however, constitutional cosmology provides an egalitarian orientation for social action, replacing the normative credo prescribed by the pre-modern religious ethics, which justified the stratified social order. In the next session, I will explore, on one hand, the impact of constitutions in our social psychology and, on the other hand, how constitutions build on our evolved psychology in order to provide stability in complex, morally and religiously pluralistic and functionally differentiated societies.

### 5.5. *The Psychological Foundations of Constitutionalism*

Functional differentiation had the same impact on the level of social systems as labor division had in societal roles or as organic differentiation had for living beings: in all cases, Darwinian entities enjoyed increased efficiency. This efficiency and the rise of an integrated functionally differentiated entity is what qualifies the constitution as an evolutionary acquisition. It is an adaptation that solves a problem within social systemic evolution, being the reaction of social systems to the differentiation between law and politics and organizing the societal interdependence of all social systems. Rather than relying on a hierarchical approach, systemic differentiation led to the emergence of social systems as autopoietic subsystems, which interact in a strictly heterarchical (horizontal, non-hierarchical) relationship. The efficiency of these subsystems increased after differentiation because

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1281 See, e.g., Rawls, J. (2005). *Political Liberalism*. p. 144.

1282 See Rawls, J. (2005). *Political Liberalism*. p. 133.

their communication (memetic replication) could become specialized to address their functional operations. And the constitution turned out to be the means to facilitate the communication between these systems.<sup>1283</sup>

This perspective raises an evolutionary puzzle that can be cast as the psychological paradox of complex societies. If our psychology was shaped by natural and cultural evolution to address a world of symbolic unity in which those who adopted the same sets of values, beliefs and behaviors were considered trustworthy because they were respected as members of the same community, how could it address functionally differentiated societies? Conversely, if these types of societies had been so deeply inconsistent with our social psychology, they would not have become stable enough to persist for as long as they actually did. Although the new societal structure of functionally differentiated societies is not legitimized on the assumption that individuals share the same cultural values, it raises the possibility of stabilizing political societies with no moral consensus.

Now, I want to focus on the last element of the proposed multilevel selection evolutionary explanation. In the previous sections, I have discussed how constitutions evolved as an adaptation that provides stability and societal integration in a complex, functionally differentiated society. Constitutions are a macrodynamic-level adaptation, structured at the level of constitutional societies, that protect and foster social action along with other functional systems by assigning rights to action-oriented meso-dynamic (organizations) and micro-dynamic (individuals) actors. However, there is a missing block in the explanation developed so far.

Constitutional societies are far different from any societal kind existing before in the history of mankind. Although being egalitarian, these societies are qualitatively different from the egalitarianism typical of prehistoric bands of hunter-gatherers. Although relying on an assumed consensus about certain rights and moral principles, along the lines of a Rawlsian overlapping consensus, these societies are not structured on a shared conception of the good, as pre-modern societies were. Constitutional societies are far different from anything that has existed before.

Acknowledging this point raises a fundamental question that needs to be answered: how are constitutional societies possible, then? How have they emerged and, more than that, became stable in the course of human history? Being different from anything before, we should expect that constitutional societies were not a societal type compatible with our innate social psychology, which expects a social environment of moral monism,

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1283 See Luhmann, N. (2004). *Law as a Social System*. p. 404.

functional differentiation and organized around the distinction between in-group friends and outsider foes. If constitutional societies were so incompatible with our innate psychology, probably they would not have lasted so long as the last three hundred years or so. Understanding *how* our mind copes with this novel sociological framework is necessary to make sense of how constitutionalism managed to sustain itself at the micro-dynamic level, i.e., individual psychology.

The legal scholar András Sajó was probably the first constitutional scholar to point out the relevance of this issue. In his book *Constitutional Sentiments*, he lays down many considerations about the role psychological emotions such as anger, fear, passion and shame played and play in constitutional history. Based on recent contributions from neurology and psychology, Sajó argues that constitutionalism would not have been possible if it had not been backed by our emotions, channeled through institutions in order to constitute a 'public sentiment' spread across the whole association of right-bearers.<sup>1284</sup>

Sajó recognizes, for instance, how constitutionalism depends on a shared conception of justice. According to him, rights are shared conventions that depend on a majoritarian feeling rooted in the conformist bias present in our social psychology. In his own words:

"Constitutionalism is about restraining the powerful, and this project is motivated - in certain regards - by intensive majoritarian sentiments. There is strength in shared majority emotions, even if they come from the weaker parties; resentment undermines certain prevalent claims to the benefit of others which were earlier disregarded. Given the human propensity to conform, majority sentiments matter a lot for public sentiments and emotion management. Conformism is a primary human attitude rooted in human evolution, and it does have impacts. One such impact is that it emotionally excommunicates the otherwise powerful elite minority."<sup>1285</sup>

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1284 See Sajó, A. (2011). *Constitutional Sentiments*. New Haven: Yale University Press. p. 25.

1285 In Sajó, A. (2011). *Constitutional Sentiments*. p. 32.

Albeit acknowledging the relevance of our psychological dispositions to understand constitutionalism, Sajó did not develop a theory about how constitutionalism links itself with our evolved psychological dispositions. Although referring to an interdisciplinary approach that takes into account behavioral psychology, anthropology and neurology, Sajó's theory lacks a deep evolutionary approach and, as a result, he cannot see many adjustment issues between our psychology and the institutions associated to constitutionalism. By reading *Constitutional Sentiments*, someone might feel that the adjustment between constitutional societies and our psychology is far more natural and unproblematic than it really is.

I will attempt to follow Sajó's insight, in order to show how constitutions adjust with our innate social psychology. In order to do so, we must develop an explanation of *how* this adjustment occurs in order to sustain stable constitutional societies. What Sajó takes as a *proviso* – the compatibility between constitutions and our innate psychological dispositions – must be explained. In sequence, I will attempt to provide such explanation by arguing that constitutions provide psychological stability for three main reasons: (i) constitutions replace religion and morality as a source of normative validity and, as a result, they use our evolved disposition to rely on symbolic markers to sustain cooperation in a morally and religiously pluralistic framework; (ii) constitutions disrupt the friend/enemy distinction nested within our minds as a result of an inclusive logic that provides a formal criteria (rights) for the potential inclusion of all right-bearers; and (iii) constitutions maintain social stability because they are grounded on normative principles which are compatible with the structure of the universal moral grammar (chapter 2).

The best Luhmann's sociological explanation can do in order to understand constitutions as an evolutionary adaptation is to acknowledge them as a structural coupling between law and politics, in a functionally differentiated society, because sociology cannot investigate the consequences of such differentiation for psychic systems. After all, minds do not participate directly in the process of communication. Nevertheless, taking a multilevel evolutionary approach allows us to devise other ways in which the constitution can be understood as more than a reaction to the systemic differentiation that provided the structural coupling between law and politics.

As even Luhmann recognizes, there is no systemic privileged point of view to be taken; although the sociologist focuses on observing the internal processes of each social system, this is only one methodological option among several others. Much can be learned about one system's operations by observing the way it relates to other social systems and to psychic sys-

tems as well. In this sense, the following hypothesis must be conceived of as a tentative description of the differentiation process through the lens of human psychic systems.

During the 16th century, the wars of religion ignited a process that disrupted the logic of cooperation as it had been established for over 200,000 years. The size of human groups has grown substantially when compared with societies of other primates because *Homo sapiens* relies on symbolic marking as a trustworthy cue to differentiate between friends and enemies. Those who adopted the same symbolic markers (linguistic dialect, rituals, clothes, specific tribal symbols that were used to mark swords, shields and banners, etc.) could be trusted as a member of the same group, and those who adopted different symbolic markers were treated suspiciously. This achievement turned out to be evolutionarily possible because it was built on many psychological dispositions we share with our closest primate relatives – a sense of fairness, a disposition to select with whom to cooperate and to monitor the social behavior of others, and a bias to imitate the cultural traits (memes) adopted by the majority of our group, among others.

Nevertheless, as Rawls advocates, the wars of religion ignited a different prospect for the future: the possibility to live in a society where different symbolic toolkits share the same cultural background as a result of one side effect of functional differentiation – the separation between law, morals, politics, and religion. From the 16th century onwards, social life became so complex that it had to find its own evolutionary path to overcome the limits of the human innate social psychology. By adopting the suggestion from Peter Richerson and Robert Boyd, we should look for workarounds that make it possible to evolve complex social institutions that, at the same time, might address the differentiation between social systems at the cultural level and the mental constraints imposed by our minds at the psychic level.

Human psychic systems expect to live in a cultural environment marked by a specific set of values, which became impossible in the aftermath of the religious wars, when Protestants and Catholics were forced to share social life under the same secular institutions based on a Lockean principle of toleration. At first blush, this solution is an unstable equilibrium caused by the perception that neither side could win – a bare *modus vivendi*.<sup>1286</sup> The same evolutionary psychological logic that forces individuals to identify re-

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1286 As Rawls states: "This becomes clear once we change our example and include the views of Catholics and Protestants in the sixteenth century. . . . Both faiths held that it was the duty of the ruler to uphold the true religion and to repress

ligious equals as friends and religiously different as enemies would be at work; they would barely tolerate one another, and would recognize the opposite side as someone who had the same political status only as a result of forced imposition.<sup>1287</sup> The first legislation that imposed tolerance did not even allow for much religious freedom: for instance, the English "Toleration Act" of 1689 did not grant rights to Roman Catholics, but only suspended the penalties imposed on Protestant dissenters from the Anglican Church that had been condemned under the grounds of heresy.<sup>1288</sup>

The first generations of Catholics and Protestants living in a background of *modus vivendi* toleration would feel as being in a truce, but the following generations would be used to life in a pluralistic background. Their minds would have never lived in a social environment where religious dissenters were real enemies that in fact posed a threat to one another on the grounds of religion. The toleration laws would impose an institutional restriction on punishment of heretics and this state of affairs would mean, from the perspective of individual psychology, that heretics are not to be punished for this reason alone. Their minds would be faced with some cognitive dissonance as a result, for they would know that heretics should be punished for not accepting the right symbolic makers (religious beliefs) but would simultaneously know that they could not be punished – a consequence of the new toleration laws. Many psychological biases would conflict in attempting to find a solution for this state of affairs. The disposition to recognize non-members as enemies would be triggered, but simultaneously the conformist bias and the disposition to avoid punishment would consider that others accepted the political decision on toleration and that disobedience might lead to legal punishment.

How could this cognitive dissonance be resolved? Our innate moral psychology reproduces in itself the distinction between moral and immoral to respond adequately to social situations. In our evolutionary past, it had to identify group members as friends and outsiders as enemies as a reliable solution to cope with double contingency. After the toleration laws, the

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the spread of heresy and false doctrine. In such a case the acceptance of the principle of toleration would indeed be a mere *modus vivendi*, because if either faith becomes dominant, the principle of toleration would no longer be followed." In Rawls, J. (2005). *Political Liberalism*. p. 148.

1287 See Allen, J. W. (1957). *A History of Political Thought in the 16th Century (Routledge Library Editions: Political Science Volume 16)*. London: Methuen & Co pp. 231-246.

1288 See Zagorin, P. (2013). *How the Idea of Religious Toleration Came to the West*. Princeton: Princeton University Press. p. 267.

moral/religious frontier between friends and enemies became fuzzy and the stability of the new state of affairs depended on establishing new distinctions because cooperation can only emerge when agents discriminate between altruists and free riders.

A new distinction suggested by John Rawls in his *Political Liberalism*<sup>1289</sup> appears to have been paramount in solving this fuzziness and psychological dissonance. According to Rawls, toleration among religions became feasible because the basic structure of a democratic society adopted a hierarchical priority of the right over the good. Questions about fairness, law and politics (the domain of right) must have precedence over ethical and religious concerns (the domain of good) in a pluralistic framework.<sup>1290</sup> Note that his approach is fundamentally different from that adopted by Luhmann, who maintains that the functional differentiation among social systems is not hierarchical but heterarchic. No social system has priority over any other. However, what would seem to be an intrinsic difference between Luhmann and Rawls turns out to be a distinction caused by the different viewpoints their theories assume. Luhmann's sociology observes social differentiation from the perspective of a social theorist, not from the perspective of an individual who tries to hold all of his beliefs adjustable to avoid dissonance.

If individuals believed that law and morality/religion had the same relevance, the struggle between morality/religion and the law would destabilize social arrangements because the fuzziness would persist and the individual would lose normative guidance for their behavior. However, the Rawlsian original position argument takes the perspective of the individual from the beginning because his original position argument starts from the individual approach, and it is useful to understand how individuals could cope by relying on the distinction between law and morality. The Rawlsian priority of the right is also useful because it acknowledges what happens from the perspective of legal and political institutions. Having to cope with society's entire social order (and not only with the allegiance of some members), institutions must also rely on the priority of law over religion and morality; otherwise, legal institutions would have no epistemological means of imposing the rule of law over religious authorities.

At first, this distinction was founded on the basis of a mere *modus vivendi* that was based on a compromise between enemies and on the fear of punishment for disobeying the law. Nonetheless, as the younger genera-

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1289 In Rawls, J. (2005). *Political Liberalism*. p. 176.

1290 In Rawls, J. (2005). *Political Liberalism*. pp. 173-211.

tions began to live their entire lives with a political background in which pluralism was the normal state of affairs, the source of the distinction between friends and enemies required to sustain cooperation came to be informed by a legal perspective – not by morality or religion. If the analogy between linguistic and moral reasoning stated by John Mikhail is right, this result should be expected. In *The Language Instinct*, Steven Pinker shows how the linguist Derek Bickerton demonstrated that an entire language could be built from scratch in only two or three generations. In the 18th century plantations, farmers deliberately mixed up slaves from different linguistic backgrounds. They could not communicate very well among themselves, but had to communicate to carry out practical tasks. As a result, they developed pidgin, a poorly articulated mixture of elements from different languages. The first-generation slaves could only develop a simple dialect, but their children, exposed to pidgin at a much younger age, would create an entirely new and grammatically sophisticated language from much simpler linguistic elements. Their innate moral grammar principles coupled with the parameters set by pidgin to produce a fully structured language.<sup>1291</sup>

A similar process might have happened in the normative domain. Social systems can build workarounds that simultaneously establish new possibilities that sustain further complexity at the social level and continue coupling with psychic systems. The offspring of those who first lived under the rule of toleration laws would accommodate pluralism from a young age; therefore, their minds lived in a religiously pluralist and (relatively) peaceful social background in which pluralism was pretty much common. Their inner moral grammar would face that state of affairs and avoid cognitive dissonance by organizing it in an easier and more structured way to be coped with. From the standpoint of mind, the priority of the right means that both the distinction between friends/enemies and the source of the main normative and symbolic loyalties is law, i.e., not religion and not morality. This statement does not mean that every single individual will obey the law or that religion has no place in contemporary constitutional democracies, as the proposed hypothesis assumes that law is held as the source of compulsory normativity by a number of individuals who transcend a statistical threshold required to affirm a state of affairs as legitimate, as a result of collective intentionality (Tomasello). Additionally, both morality and religion became a matter of individual consciousness in

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1291 See Pinker, S. (2011). *The Better Angels of Our Nature*. New York: Penguin. pp. 32-33.



modernity; after the separation of church and state, religion lost its relevance as a privileged standpoint from which to explain the normative world.<sup>1292</sup>

Constitutionalism replaced religion and morality (in the form of natural law) as the central source of normativity by capturing this function as a symbolic marker from which all legal norms derive. In a very specific sense, it would not be wrong to assume that theological and constitutional rationalities are strikingly similar. As Ran Hirschl correctly assumes, both religions and constitutional regimes share many features.<sup>1293</sup> They are held as apolitical symbols based on sacred texts, such as the Bible in a Christian lifeworld, or the constitution, in a secular democratic regime. Both are tied to elevated and highly idealized moral commitments, such as the constitutional principles of religious toleration, equality and liberty, or the cardinal virtues proposed by most religions.<sup>1294</sup> Thus, constitutionalism can be understood as a national civil religion that functions as a new source of normativity and identity by establishing a sense of bounded collectiveness.<sup>1295</sup> The constitution becomes the focus of political life in a pluralistic society – a phenomenon described by Rawls as an overlapping consensus<sup>1296</sup> and by Habermas as constitutional patriotism.<sup>1297</sup>

Constitutionalism also enabled more complexity in other organizational domains by providing an institutional framework in which power is diluted both vertically through federal/local adjustments and horizontally via the separation of powers. Federal arrangements can also be deemed to be institutional workarounds to overcome psychological limitations because they keep the size of the immediate communities in which any individual can take part as small as possible, thus respecting the cognitive capacities of each individual (such as Dunbar's number). Simultaneously, they enable each individual to participate in all hierarchical spheres of power

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1292 See Luhmann, N. (1985). *Society, Meaning, Religion: Based on Self-Reference Sociological Analysis*, 46(1), 5-20; Luhmann, N. (1992). *The Code of the Moral. Cardozo Law Review*, 14, 995-1009.

1293 See Hirschl, R. (2010). *Constitutional Theocracy*. Cambridge: Harvard University Press. pp. 206-240.

1294 Writing about the importance of constitutionalism to national identity, Hirschl refers to Max Lerner's description of the Constitution as an American fetish and to Jaroslav Pelikan's suggestion that the American Constitution filled a gap left by excluding religion from the public sphere.

1295 See Levinson, S. (2011). *Constitutional Faith*. p. 55.

1296 In Rawls, J. (2005). *Political Liberalism*. p. 176.

1297 See Habermas, J. (1996). *Between Facts and Norms*. p. 500.

through elections. In this sense, the first federal arrangements might be understood as initial 'glocal' experiments that institutionalized both a national/global identity and local (states/municipalities) partial identities<sup>1298</sup> that further institutionalized at the local level the principles established by the federal constitution.<sup>1299</sup>

The second way in which constitutionalism relates to psychic systems is that it establishes criteria to distinguish between in-group members and outsiders. As outlined above, this distinction is required to induce and maintain the flow of cooperation in large communities of genetically unrelated individuals. Otherwise, the epistemic costs of monitoring social behavior to identify and punish cheaters would be so high that life in large societies would not be evolutionarily stable. Religiously closed communities solved this problem because the distinction between friends and enemies was based on devotion and heresy. Cooperation in these communities is targeted at devotees, and heretics suffer moralistic punishment for not accepting the majoritarian beliefs.

In a constitutional and pluralist society, the social identity of individuals is not attributed to persons on the grounds of beliefs or personal values, but on the assumption that "all men are created equal" and endowed with "unalienable rights," as the American Declaration of Independence (1776) asserts. In the same fashion, the French Declaration of the Rights of Man and of the Citizen (1789) affirms that all "men are born and remain free and equal in rights." At first blush, the attribution of rights was much more restrictive than this abstract statement should mean: women, blacks, children, indigents, natives, religious minorities and many other classes of persons had almost no rights pursuant to such bold statements. Nevertheless, the abstractness of the declarations of rights brought up the possibility of discussing to whom constitutional rights should be applicable. By not relying on strong metaphysical assumptions, the acquisition of rights became a strictly political issue and, by means of wars, protests, strikes and other political movements, many classes of individuals came to defy traditional customs and obtain the status of equal citizen. The legal historian

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1298 See Marramao, G. (2001). *Globalization, Conflict of Values and Contingent Identity*. Münster. p. 289.

1299 The appropriation of the 'glocal' concept has not been as strict as proposed by Giacomo Marramao. Global principles such as human rights are settled and institutionalized in different local realities. In the appropriated usage, I refer to 'global' both in the sense of a national background (in the case of constitutionalism) and of a globalized framework (in the case of human rights).

Lynn Hunt argues that the expansion of rights of minorities was a direct consequence of the abstractness of the declaration of rights. In her words:

"[T]he supposedly metaphysical nature of the Declaration of the Rights of Man and Citizen proved to be a very positive asset. Precisely because it left aside any question of specifics, the July–August 1789 discussion of general principles helped set in motion ways of thinking that eventually fostered more radical interpretations of the specifics required. The declaration was designed to articulate the universal rights of humanity and the general political rights of the French nation and its citizens. It offered no specific qualifications for active participation. The institution of a government required movement from the general to the specific; as soon as elections were set up, the definition of qualifications for voting and holding office became urgent. The virtue of beginning with the general became apparent once the specific came into question."<sup>1300</sup>

In the same fashion, Steven Pinker sustains that "the statement 'We hold these truths to be self-evident, that all men are created equal,' however hypocritical at the time, was a built-in rights widener that could be invoked to end slavery four score and seven years later and other forms of racial coercion a century after that."<sup>1301</sup> Because it was abstract, this attribution of rights allowed for the discussion about who are their legitimate bearers and opened the door for a new possibility: that every single human being might be considered a bearer of constitutional rights/human rights. From the perspective of psychic systems, this means that, in principle, no person should be regarded as an enemy unless they pose a real threat or violate the rights of others. This was a major evolutionary achievement, not only from a cultural perspective but also from a biological one. For the first time, every human being could be considered a friend, a member of the group, unless he/she refused to obey the rule of law. Valid punishment of free riders is permitted on the grounds of legal violation, not as the result of being part of a particular religious/moral/ethnic group.

Of course, this description is just an idealized approach to a rather obtuse historical background. Although the advent of constitutionalism enabled group-openness and pluralism, we should keep in mind that constitutionalism is an artificial construct. Psychic systems evolved in simpler social environments in which their attachment to moral/religious standards

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1300 See Hunt, L. (2008). *Inventing Human Rights: A History*. p. 1735.

1301 See Pinker, S. (2011). *The Better Angels of Our Nature*. p. 161.

was stronger than the current attachment to the constitution. As Rawls observes, religions are deep.<sup>1302</sup> They define every aspect of a citizen's life, such as a dress code, food restrictions, moral and sexual behavior, and their ultimate conception of the good. In a pluralist society, on the other hand, democratic constitutions are narrow; they cannot determine every aspect of a citizen's life, or they would otherwise impose a particular conception of the good on the citizens. Instead, democratic constitutions focus on very specific issues, such as the structure of the government, the political process and the basic rights that legislatures must respect.<sup>1303</sup> The stability of the system is created, in Rawls's statement, by coupling constitutional principles with comprehensive doctrines through the overlapping consensus, a situation in which the legitimacy of the political order is granted because each religious/philosophical doctrine adjusts itself to accept the constitutional regime. This adjustment demands substantial tolerance from comprehensive doctrines, and in many real societies it cannot happen easily. The friend/enemy distinction is psychologically much stronger in deeper comprehensive doctrines than in narrow political constitutionalism, and the dissonance between religious and political commandments can lead to many struggles and can pose a real threat to the stability of democratic institutions.

The success of democratic regimes depends on their efficacy in institutionalizing the distinction between the right and the good. At least in a certain sense, the failure to maintain this contrast is at the root of the tragic ascent of the Nazi party in Germany. The political theory of Carl Schmitt is a strikingly crude example of this, for he criticized liberalism precisely because it led to a pluralistic state of affairs in which the State was subject to the will of dissenting groups. Pluralism should not be tolerated because it corrupted the political element of the Weimar Constitution by blocking the construction of a homogeneous political will.<sup>1304</sup> Homogeneity, in his view, demanded a political decision regarding who are friends and who are enemies who oppose the political order and therefore should be eradicated.

Nazi ideology could be understood as a comprehensive doctrine in Rawlsian terms. It was based on a full account of who were to be held as friends and enemies, and it demanded from in-group members an almost

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1302 See Rawls, J. (2005). *Political Liberalism*. p. 176.

1303 See Rawls, J. (2005). *Political Liberalism*. p. 176.

1304 See Dyzenhaus, D. (1997). *Legality and Legitimacy*. Oxford: Oxford University Press. p. 81.

religious loyalty to Nazi symbols and rituals and complete submission to the values of the collective identity. The degradation of the German economy,<sup>1305</sup> coupled with the unstable social environment after World War I, paved the way for popular support of the Nazi party.<sup>1306</sup>

Not accepting the hierarchic distinction between the right and the good, German constitutional theory lacked the theoretical framework necessary to contain the ideological rise of Nazism and its diffusion through democratic institutions. Although not as radical as Schmitt, other Weimar Republic public law theorists such as Smend and Kaufmann feared pluralism and posited that unity, homogeneity and integration were the paramount aims of politics and law.<sup>1307</sup> Of course, there was opposition to this reasoning: Hans Kelsen, e.g., supported democratic institutions and considered that democracy should embody value relativism and decide controversial issues on the procedural foundations of the majoritarian rule because the

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1305 See James, H. (2001). *The Deutsche Bank and the Nazi Economic War against the Jews*. Cambridge: Cambridge University Press. pp. 16-20.

1306 See Jacobson, A. J., Schlink, B. and Cooper, B. (2000). Weimar. pp. 11-14.

1307 In this sense, see the account from Arthur J. Jacobson and Bernhard Schlink: "Integration, the key concept in Smend's theory of the state and constitution, is not a given, not something created in and of itself or signed and sealed by a social contract or constituted by a constitution once and for all; it is a process, constantly renewed, to be newly formed and experienced. The state 'is there only in this process of constant renewal.' It can therefore also succeed or fail, depending on whether the process — which Smend sought to grasp and describe in its various cultural and attitudinal, political and legal aspects — succeeds or fails. For Heller, too, state unity is something that must be established and maintained and that can fail. But where Smend relies on culture, values, and meaning, and their common spiritual experience to establish and maintain unity, Heller recognizes the importance of economic and social conditions, state organization and state procedure. Propagating a realist approach against Smend's idealist one, Heller confronts the state as a unity of culture, values, and p.437: meaning, with the state as a unity through action and decision [*Wirkung und Entscheidungseinheit*], where unity must be achieved through organization and procedure and enforced in decisions. It is not enough for Heller that the state's unity through action and decision is effective. For him, unity must be created and maintained — unlike Smend's integration, at least as it is commonly understood — not merely in being effective, but in conforming to ethical standards that should arise from and correlate with a society's ethical practices. Heller did not elaborate on how conformity would come to pass. Nevertheless, the possibility of achieving conformity linked his political activity as a Social Democrat and champion of the Weimar Republic with his scholarly work." In Jacobson, A. J., Schlink, B. and Cooper, B. (2000). Weimar. pp. 18-19.

validity of law could not be based on pre-positive values or norms.<sup>1308</sup> Nevertheless, Hitler successfully appropriated Schmitt's ideals and his proposal that the Führer, as an incarnation of the people's unity, was the only legitimate official to affirm autonomously who are the friends and who are the enemies.

The acceptance of the distinction between the right and the good is highly contextual and highlights the difficulties of handling the delicate equilibrium between institutions and political culture. Without a cultural background fostering tolerance and autonomy, institutions can interpret the friend/enemy distinction based on intolerant comprehensive doctrines that more easily trigger emotional responses on psychic systems. For most of our evolutionary history, we coped with pluralism in a totalitarian fashion by treating as enemies those who held different beliefs than those held by the majority.

Even a strong democratic and constitutional tradition can stumble when confronted with the psychological panic posed by a threatening enemy, which weakens the distinction between the right and the good. Episodes such as the American institutional reaction to the terrorist events of 9/11, the approval of the Patriot Act few weeks after the attacks, or French intolerance with respect to the religious practices of Muslim communities, can be read under this theoretical framework. In times like these, the friend/enemy distinction loses its constitutional foundation and establishes itself on values derived from majoritarian underlying comprehensive doctrines. To maintain the priority of the right over conceptions of the good, democratic institutions must root their principles in the minds of citizens through education and public political practices;<sup>1309</sup> otherwise, the risk of a political takeover from majoritarian comprehensive doctrines is real and credible.

The third and last way in which constitutionalism relates to psychic systems is by adjusting its normative principles to the universal moral grammar's innate principles.<sup>1310</sup> Constitutionalism not only fits with moral psychology regarding its institutionalization of symbolic markers that estab-

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1308 See Jacobson, A. J., Schlink, B. and Cooper, B. (2000). Weimar. p. 73.

1309 See Callan, E. (1997). *Creating Citizens: Political Education and Liberal Democracy*. p. 125.

1310 It is important to note that the meaning of 'principle' in the expressions 'normative principles' and 'universal moral grammar innate principles' is not the same. In the former, it refers to deontological standards of reasoning, whereas, in the latter, it means the universal moral categories embedded in human innate mind.

lish a highly abstract sense of identity and a highly inclusive friend/enemy distinction but also is suited to our innate sense of fairness based on reciprocal altruism and reversed-hierarchy egalitarianism.

The logic of fundamental rights is highly reciprocal. Citizens in constitutional democracies are held as equals in rights and can invoke legal institutions to protect them against perpetrators of actions violating such rights. The legal description of a rights violation might be translated into a game-theoretic approach as a cue to third-party institutional punishment-based reciprocity. Constitutional symbolic markers settle rights-based criteria to distinguish between altruists (friends, or those who have rights) and free riders (enemies, those who violate the rights of others or who do not have any rights at all). By attributing competencies to various legal authorities, constitutions also assign the institutions responsible for monitoring social behavior. From the standpoint of reciprocal altruism logic, this indicates that legitimate constitutions establish the institutions that, from its perspective, perform the function of moral communities that punish free riders.

Certainly, stratified social structures in the Middle Ages or in Antiquity had institutions that performed the same function. Nevertheless, they were highly unstable because their legitimacy was structured over an imbalanced strength between different social strata. Cooperation requires both legitimacy and punishment, and stratified societies face the challenge of keeping themselves stable even on a highly unequal social structure. Much of the social stability was provided by punishment directed to the lower strata, which lacked enough power and organizational strength to counter this state of affairs, and its legitimacy depended on how lower strata could avoid cognitive dissonance<sup>1311</sup> and justify the state of affairs on the grounds of religion and morality.

Constitutionalism, on the other hand, is highly congruent with reversed-hierarchy egalitarianism, which is another feature of our moral psychology.<sup>1312</sup> In fact, it might be considered the first social arrangement in human history that structured complex institutions around this psychological trait after the egalitarian tribes of the Pleistocene. There are remarkable similarities between the ways constitutionalism and prehistoric tribes

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1311 See Jost, J. T., Chaikalis-Petrtsis, V., Abrams, D., Sidanius, J., van der Toorn, J. and Bratt, C. (2012). Why Men (and Women) do and don't Rebel: Effects of System Justification on Willingness to Protest. *Personality and Social Psychology Bulletin*, 38(2), 197-208.

1312 See Sajó, A. (2011). Constitutional Sentiments. p. 32.

addressed the issue of power distribution. As Boehm's research demonstrates, ancient hunter-gatherer communities were structured over inversed hierarchies in which the tribal chief is strictly subject to the moral community. His strength is under critical scrutiny of the tribe, and any attempt to impose his will on others may be punished with a broad range of moral sanctions, including ostracism and assassination. The autonomy of each tribal member against the chief is warranted by the entire community as a result of a psychological disposition to revolt against the improper use of political power.

In the same fashion, constitutionalism is based on a suspicion of the political abuse of power. Separation of powers, attribution of legal competences to different authorities, distribution of attributions among a federated framework, judicial review and fundamental rights are institutions that protect different spheres of autonomy. The very origins of constitutionalism are related to this issue, as the history of the famous constitutional revolutions demonstrate. The American Revolution originated from colonial dissent against the high taxes imposed by the British Crown and resulted in the promulgation of the United States Constitution (1787) 11 years after the Declaration of Independence (1776). Alternatively, the French Revolution resulted from the revolt against nobility and clergy on the grounds of intense inequity of resource distribution and imbalance of power between the three estates. Even the earlier Glorious Revolution (1688) can be understood under this theoretical framework because it also led to institutional changes that resulted in a strict control of royal power by the Parliament. Different issues were at stake in each case, but each resulted in imposing restrictions on political authority.

However, the parallels between Pleistocene egalitarian communities and constitutional democracies can lead to a superficial conclusion that must be avoided. At first, it would appear that the same underlying causes are behind both social processes, but this is not the case. On one hand, the egalitarian revolution of the Pleistocene occurred mostly as a result of clashes among the members of a tribe and its chief, and cannot be described as a cultural revolution<sup>1313</sup> because the social tribal structures did not change with the deposal of the chief as a consequence; on the contrary,

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1313 Carlos Arturo Plazas and Alejandro Rosas highlight five elements related to the evolution of egalitarianism (or, in their terms, the weakening of domination hierarchies) among the *Homo* genus. According to them, the dietary habits of our ancestors (consumption of food resources that could not be monopolized by a few individuals), mobility in search for food sources, protection



social structures remained relatively intact when tribal leaders were replaced. Obviously, in the long run, the constant monitoring of bullies by the entire tribe had an important impact on the evolution of the reversed-hierarchy bias, but it was likely a slow social process that took hundreds of generations to stabilize into new types of society. Such a slow process can hardly be called revolutionary – at most, it should be called a (r)evolutionary process.

For its part, constitutionalism is a cultural, social and structural phenomenon and is much more complex because constitutional institutions limit power by establishing separate sets of distinctions, both hierarchically (right–good or law–religion/morality; federal–state–municipality; and citizen–state) and horizontally (law–politics or legislative–executive–judiciary). Conversely, reversed hierarchy (r)evolution occurred on the domains of the social and the psychic systems, and it granted autonomy to the psychic systems against other psychic systems – and not against the entire tribal community – because no individual could revolt against its communitarian ancestral practices. Constitutionalism is a cultural and institutional systemic bridge that grants autonomy to both the psychic and social systems by providing institutional firewalls that protect their autopoietic operations. It not only assures us that individuals have the right to believe in a particular faith (psychic autonomy is granted via individual rights) but also protects religions against political intervention (separation of church and state), protects politics against scientific colonization (political freedom of speech), protects science against religious imperialism (scientific autonomy), and so on.

The relationship between constitutionalism and reversed-hierarchy psychology is subtler and is related to the problem of stability. To be stable, social institutions must be compatible with our social psychology or build workarounds to neutralize possible events leading to cognitive dissonance. The constitutional ideology of power contention and individual autonomy is remarkably sound to capture biases related to reversed-hierarchy psychology. The promises of equality and freedom may resonate in our minds and trigger dispositions related to inequity aversion and suspicion of power abuse, particularly in the political environment of the 18th century, in

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against predators in larger groups, male parental care and the formation of coalitions are some of the factors to be taken into account in order to explain the evolution of egalitarianism among humans. See Plazas, C. A. and Rosas, A. (2015). La Transición Social en el Género Homo. *Ciência & Ambiente*, 48, 271-287.

which demands for autonomy and equality were salient. Unlike the political ideologies that justified stratified social structures, the political ideas of liberalism and constitutionalism were appealing to these psychological biases because they offered psychological relief against inequality and a political path to overcome it.

Furthermore, constitutionalism provides stability not only on the psychological level. As a multilevel evolutionary approach should observe, constitutionalism also enhances stability at the level of the political system. Before constitutional democracies became a historical possibility, political change was not exactly easy. Dissent was to be hidden from political life through obscure means protected as *arcana imperii*, or otherwise it should be channeled through violent means that resembled how those tribal chiefs were deposed in ancient communities. Constitutional democracies enabled the construction of dissent without political rupture by reinforcing the government/opposition distinction in the domain of politics. Regular elections for public offices grant that dissent can be absorbed in the political processes – at least in principle.

In sum, constitutionalism became such a widespread phenomenon because its main tenets provide a stable legal framework that not only protects differentiation among different social systems, but also grants autonomy at the level of functional groups (religious groups, workers' unions, political associations, etc.), roles and individuals. By coupling itself with psychic systems and by adopting distinctions that could easily be adjusted to normative premises of our innate psychology, the ideological memes of constitutionalism might spread quickly throughout the world – and have, in fact – because even political systems that could hardly be recognized as constitutional democracies embrace its rhetoric.

## Concluding Remarks

In an influential paper regarding the implications of evolutionary thinking to legal regulation, Brian Leiter and Michael Weisberg argued that "as the science stands today, evolutionary biology offers nothing to law" and that "only systematic misrepresentations or lack of understanding of the relevant biology, together with far-reaching analytical and philosophical confusions, have led anyone to think otherwise."<sup>1314</sup> They ask rhetorically whether one should expect "law and evolutionary biology" to "have the lasting power and impact of, say, law and economics, or will it go the way of deconstructionism and Critical Legal Studies (CLS), both of which faded from the scene in roughly a decade or less?" And their answer is sharp: "the 'law and evolutionary biology' fad should have a shelf life at least as short as deconstruction's."<sup>1315</sup> Evolutionary psychology has delivered no consistent and unequivocally confirmed results thus far – the argument goes – and institutions do not require a complete understanding of human behavior to regulate successfully. Leiter and Weisberg also dismiss the pursuit of concilience between social and natural sciences as an epistemological ideal.<sup>1316</sup>

However, the consistency of any legal theory should not be evaluated for the sake of its success in being used by the community of judges and lawyers. Neither CLS nor deconstructionism aimed to provide a new foundation for legal practice, but both led us to deeper understandings of the law and of many of law's unspoken premises. Similarly, taking evolutionary biology into account when analyzing the law can enlighten the way in which we see many features that were previously hidden. If evolutionary psychology seems to have delivered no consistent and unequivocally confirmed results – as Leiter and Weisberg argue – it has the merit of at least having successfully noted the demise of the rationality assumptions upon which most of law and economics theory relies on. We human beings are

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1314 See Leiter, B. and Weisberg, M. (2009). Why Evolutionary Biology Is (So Far) Irrelevant To Legal Regulation. *Law and Philosophy*, 29(1), 31-74.

1315 In Leiter, B. and Weisberg, M. (2009). Why Evolutionary Biology Is (So Far) Irrelevant To Legal Regulation. pp. 33-34.

1316 See Leiter, B. and Weisberg, M. (2009). Why Evolutionary Biology Is (So Far) Irrelevant To Legal Regulation. pp. 54-62.

not so rational as rational choice theories assume. The psychological biases involved in our reasoning affect us all the way down to how we behave, how we interpret the law and how we judge the behavior of others.

It is true that evolutionary psychology and the other biological sciences have not yet unequivocally explained the many aspects of our complex social behavior. However, they have the merit to have shown that social scientists – and legal theorists among them – must think about the consequences of not taking into account the evolved aspects of our psychology that affect rationality and the way humans behave. Although in a still underdeveloped ongoing research program, its premises are already being tested within the domain of legal practice. There is evidence regarding the influence of psychological biases in how judges think<sup>1317</sup> and about how our predisposition to behave according to law and morality is affected by the proper functioning of our brain because lesions and tumors can induce us to behave in antisocial ways.<sup>1318</sup>

These findings are important for law because they call into question many factors that had been overlooked by legal theory and that impact the normal functioning of legal institutions. That a judge's impartiality can be affected by something as naïve as a dice number<sup>1319</sup> or that even experienced magistrates can be influenced by extraneous factors such as fatigue and hunger<sup>1320</sup> is something that must be taken into account by legal theory. None of these studies could have been developed without relying on the assumption that psychological and biological factors play an important role in legal practice.

Furthermore, taking an interdisciplinary perspective leads to a better understanding of how legal institutions evolve over time and remain deeply rooted in human nature. Even if there is much to be learned about human psychology, it is simply not an option to wait before incorporating the knowledge we currently have into legal theory; otherwise, institutions will

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1317 See Guthrie, C., Rachlinski, J. J. and Wistrich, A. J. (2007). Blinking on the Bench: How Judges Decide Cases. *Cornell Law Review*, 93, 1-44.

1318 See Greene, J. D., Sommerville, R. B., Nystrom, L. E., Darley, J. M. and Cohen, J. D. (2001). An fMRI Investigation of Emotional Engagement in Moral Judgment. *Science, New Series*, 293(5537), 2105-2108; Yang, Y. and Glenn, A. L. (2008). Brain Abnormalities in Antisocial Individuals: Implications for the Law. *Behavioral Sciences and the Law*, 26, 65-83.

1319 See Englich, B., Mussweiler, T. and Strack, F. (2006). Playing Dice with Criminal Sentences. *Personality and Social Psychology Bulletin*, 32, 188-200.

1320 See Danziger, S. (2011). Extraneous Factors in Judicial Decisions. *Proceedings of the National Academy of Sciences*, 108(17), 6889-6892.

continue to rely on assumptions and models that have been proven false, such as the rational actor model assumed by the economic analysis of law. By taking into account the knowledge accumulated by scientific fields as diverse as social and evolutionary psychology, Darwinian anthropology, and neuroscience, among others, scholars can develop better legal theories because they will be relying on more accurate models of human social behavior.

Obviously, the hypotheses generated by this evolutionary paradigm can only embody a tentative project that follows, accordingly, a Popperian approach to scientific thought. Brian Leiter argues that this is a failure that characterizes any attempt to apply evolutionary thinking to legal thought, but the fact is that every scientific and historical explanation is tentative. Scholars and scientists can only hope to do the best with the data they have at the moment, and the best they can do is to make theoretical sense of the available evidence. It is not by ignoring data from other sciences that we can hope to design better institutions. Cass Sunstein and Richard Thaler's<sup>1321</sup> attempt to apply behavioral economics to understand and design legal institutions and Jon Hanson's situationist approach regarding the implications of social psychology to understand market manipulation<sup>1322</sup> and torts<sup>1323</sup> are prominent examples of how to undertake this enterprise.

In addition to using social behavioral and evolutionary sciences to design better institutions, there is a less pragmatic sense in which this interdisciplinary approach can benefit social and legal theory. It can provide a broader account about the very nature and function of law and of the role law has played in the sociological, cultural and natural evolution of mankind. We are acquainted with historical thinking in law, but legal philosophy has yet to cross the Rubicon between man and other animals. Except for certain studies conducted by anthropologists and social psychologists, almost no study has seriously attempted to understand the impact of our animal nature on our social behavior and on the evolution of institutions.

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1321 See Thaler, R. H. and Sunstein, C. (2009). *Nudge*. New York: Penguin. pp. 65-71.

1322 See Hanson, J. and Kysar, D. A. (1999). Taking Behavioralism Seriously: Some Evidence of Market Manipulation. *Harvard Law Review*, 112(7), 1420-1572.

1323 See Hanson, J. and McCann, M. (2007). Situationist Torts. *Loyola of Los Angeles Law Review*, 41, 1345.

Still, there is a need for *more* interdisciplinarity. Usually, when legal scholars talk about interdisciplinary research, they mean taking into account the contributions from fields such as sociology, history and anthropology. However, findings and theories from biology, neurology, psychology (and so many other conceivable fields) can also contribute to the advancing of legal theory. By this, I do not mean to take for granted – as Edward O. Wilson did – that social theory must abdicate its own epistemology in favor of the natural sciences, but that all fields must talk in order to produce a truly interdisciplinary approach, taking each science's contribution seriously.

This book can be understood as a tentative attempt to reframe the development of constitutionalism within evolutionary thought by adopting this epistemological instance. I have tried not to establish naïve and direct implications between our biological/psychological nature and the tenets of constitutionalism; instead, I sought to offer a rather complex description of how biology, culture and institutions may have interacted in such a way that constitutionalism resulted as a feasible evolutionary achievement.

In order to do so, I aimed to put biology, sociology, anthropology and legal theory in contact, without taking for granted the superiority of any of these individual approaches. As I see it, evolutionary theory turns this endeavor into a real possibility, insofar as it helps us understand the evolution of complex structures taking into consideration the full scope of intricate relations between many ontological levels – the biological, the psychological, the cultural, the social and, as I have been arguing, the socio-structural. Evolutionary theory can help us understand the interaction of so many different ontological levels without assuming the precedence of one level over the others. Maybe the answer developed here will be regarded over time as a false hypothesis about how this interaction occurred, but at the very least I believe in its merit of having posed some methodological and substantive questions that should be addressed by the community of legal scholars.

Of course, I do not mean that constitutionalism can be *only* explained by recourse to such view. Nonetheless, I have tried to explain constitutionalism as part of a solution to a much wider and longstanding problem in our history as a species – how can we cooperate at all?

Since human prehistory, we have devised many ways to cope with the problem of cooperation. Psychological biases selected as a result of kin selection and reciprocal altruism fostered collaborative action between relatives and egalitarian exchange-based interactions. Later on, between 200,000 - 500,000 years ago, our species became increasingly capable to rea-

son in terms of culturally-transmitted information, and cooperation in *cultural* communities became an evolutionary possibility not only as a result of specific cultural causes, but also as a consequence of the evolution of specific psychological traits such as the ability to reason through language and imitate (and the related conformity bias), the faculty of engaging in symbolic marking, and moralistic aggression.

As Richerson and Boyd have demonstrated, these psychological biases can explain, from a naturalistic perspective, much of what happened in human history in terms of our ability to cooperate in increasingly larger societies. However, modernity brought more cultural, institutional and social complexity than we have ever faced before in human history. The lack of cultural homogeneity and the explosion of heterarchical functional specialized social systems, in a process precisely detailed by Hauke Brunkhorst, Luhmann and Marcelo Neves, demands a more complex approach.

If we desire to understand the emergence of constitutionalism from the standpoint of a theory of cooperation that takes into account evolution and the fact that we, humans, are at once, biological, social and cultural beings, then we must understand constitutionalism within a comprehensive framework that takes into account theories about all these elements. This is what I have attempted to do and I hope to have succeeded at least partially in bringing novel questions to illuminate constitutional theory.





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